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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:27:08 ; Search time 61.6154 Seconds  
(without alignments)  
115.924 Million cell updates/sec

Title: US-09-266-543-1  
Perfect score: 239  
Sequence: 1 YCKNGGFPLRIHPGRVDGV.....PHIKLQAEERGVSIKGV 45

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1107863 seqs, 158726573 residues  
Total number of hits satisfying chosen parameters: 1107863

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :  
1: A: Geneseq\_19Jun03.\*  
2: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA1980.DAT.\*  
3: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA1981.DAT.\*  
4: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA1982.DAT.\*  
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7: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA1985.DAT.\*  
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11: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA1989.DAT.\*  
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17: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA1995.DAT.\*  
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19: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA1997.DAT.\*  
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22: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA2000.DAT.\*  
23: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA2001.DAT.\*  
24: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA2002.DAT.\*  
25: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA2003.DAT.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	239	100.0	45	8 AAP71559	Fibroblast Growth
2	239	100.0	45	14 AAR43278	FGF antagonist bFG
3	239	100.0	45	21 AAB18551	Immunogenic peptid
4	239	100.0	86	9 AAP81933	Human basic fibrob
5	239	100.0	101	10 AAP90557	rhbFGF mutein CS10
6	239	100.0	105	10 AAP90558	rhbFGF mutein CS10
7	239	100.0	114	10 AAP90559	rhbFGF mutein C114
8	239	100.0	118	10 AAP90560	rhbFGF mutein C118
9	239	100.0	121	23 ABB81292	Human FGF2 core st

10	239	100.0	123	10 AAP90561	rhbFGF mutein C123
11	239	100.0	129	9 AAP81940	Human basic fibrob
12	239	100.0	129	10 AAP90562	rhbFGF mutein C129
13	239	100.0	129	10 AAP90564	rhbFGF mutein CS23
14	239	100.0	132	20 AAP17995	Human basic fibrob
15	239	100.0	134	9 AAP81932	Human basic fibrob
16	239	100.0	138	10 AAP90563	rhbFGF mutein C137
17	239	100.0	138	10 AAP90565	rhbFGF mutein CS23
18	239	100.0	139	9 AAP81937	Human basic fibrob
19	239	100.0	144	11 AAP03964	Basic fibroblast g
20	239	100.0	145	13 AAP24408	Sequence of basic
21	239	100.0	145	13 AAP25913	Human basic fibrob
22	239	100.0	146	9 AAP71145	Basic fibroblast g
23	239	100.0	146	9 AAP82579	Human basic fibrob
24	239	100.0	146	12 AAP14427	Basic fibroblast g
25	239	100.0	146	13 AAP25197	Basic fibroblast g
26	239	100.0	146	13 AAP25423	bFGF derivative.
27	239	100.0	146	13 AAP25943	Bovine basic FGF.
28	239	100.0	146	13 AAP27964	bFGF mutein BFM2.
29	239	100.0	146	13 AAP27965	bFGF mutein BFM3.
30	239	100.0	146	13 AAP27966	bFGF mutein BFM4.
31	239	100.0	146	13 AAP27967	bFGF mutein BFM5.
32	239	100.0	146	13 AAP27717	Mammalian basic FG
33	239	100.0	146	14 AAR34494	Human basic fibrob
34	239	100.0	146	14 AAR39190	Human basic fibrob
35	239	100.0	146	14 AAR39188	Human basic fibrob
36	239	100.0	146	14 AAR42835	bFGF mutein CS23.
37	239	100.0	146	15 AAR65925	Fibroblast growth
38	239	100.0	146	15 AAR65926	Fibroblast growth
39	239	100.0	146	15 AAR65927	Fibroblast growth
40	239	100.0	146	15 AAR65928	Fibroblast growth
41	239	100.0	146	15 AAR65929	Fibroblast growth
42	239	100.0	146	20 AAP87617	Human basic fibrob
43	239	100.0	146	21 AAP93186	Human basic fibrob
44	239	100.0	146	21 AAP87847	Human FGF-2 protei
45	239	100.0	146	21 AAP87848	Bovine FGF-2 prote

ALIGNMENTS

RESULT 1  
AAP71559  
ID AAP71559 standard; Protein; 45 AA.  
AC AAP71559;  
XX  
XX 25-MAR-2003 (updated)  
DT 01-MAY-1991 (first entry)  
XX  
XX Fibroblast Growth Factor antagonist #4.  
XX  
XX fibroblast growth factor; FGF; heparin-binding.  
XX  
XX Synthetic.  
XX  
XX EP246753-A.  
XX  
XX 25-NOV-1981.  
XX  
XX 21-APR-1987; 87EP-0303489.  
XX  
XX 22-APR-1986; 86US-0854843.  
XX  
XX (SALK ) SALK INST BIOLOGICAL STUDIES.  
XX  
XX Baird AJ, Ling NCK;  
XX  
XX WPI; 1987-328974/47.  
XX  
XX New polypeptide antagonists of fibroblast growth factor -  
XX effective against basic or acidic forms, useful eg for treating  
XX proliferative diseases

XX Claim 7; Page 16; 18pp; English.

PS The C-terminal group is -NH<sub>2</sub> or -OH. The sequence includes the four

CC residue sequence Pro-Asp-Gly-Arg which constitutes residues 36-39 of

CC basic FGF; it is also antagonistic to acidic FGF. The antagonist

CC modulates growth of epithelial (and related) cells and can be used

CC diagnostically or therapeutically, eg to treat proliferative

CC diseases of eyes and kidneys, some types of tumours and adrenal

CC vasculature. It is able to bind with heparin or with the FGF

CC receptor.

CC See also AAP71542, AAP71557, AAP71558 and AAP71561.

CC (Updated on 25-MAR-2003 to correct PA field.)

XX Sequence 45 AA;

SO Query Match 100.0%; Score 239; DB 8; Length 45;

Best Local Similarity 100.0%; Pred. No. 5,4e-26;

Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 1 YCKNGGFRLRHPDGRVGVREKSDPHIKLOQAEERGVSIGKV 45

Db 1 YCKNGGFRLRHPDGRVGVREKSDPHIKLOQAEERGVSIGKV 45

RESULT 2

AA43278

ID AA43278 standard; peptide; 45 AA.

XX AA43278;

AC 25-MAR-2003 (updated)

XX 05-MAY-1994 (first entry)

DT FGF antagonist bFGF(24-68)-NH<sub>2</sub>.

DE Bovine; basic fibroblast growth factor; antagonist; mitogen;

XX melanoma; glomerulonephritis; retinopathy.

KW Synthetic.

OS Key Location/Qualifiers

XX Modified-site 45

FT /note= "amidated"

XX US5252718-A.

XX 12-OCT-1993.

PD 27-APR-1992; 92US-0873773.

XX 22-APR-1986; 86US-0854843.

PR 14-NOV-1988; 88US-0270225.

XX 27-APR-1992; 92US-0873773.

XX (SALK ) SALK INST BIOLOGICAL STUDIES.

XX Baird JA, Ling NC;

XX WPI; 1993-336156/42.

DR WPI; 1993-336156/42.

XX New fibroblast growth factor peptide(s) - are FGF antagonists

PT used to inhibit cell growth in culture or in disease e.g.

PT retinopathy, glomerulonephritis, melanoma etc.

XX Example 1; Column 10; 12pp; English.

XX The peptide bFGF(24-68)-NH<sub>2</sub> (100mcg/ml) reduces the amount of

CC radioactive bFGF bound to the BHK cells by 54% and shows strong

CC affinity to bind heparin.

CC (Updated on 25-MAR-2003 to correct PF field.)

XX Sequence 45 AA;

Query Match 100.0%; Score 239; DB 14; Length 45;

Best Local Similarity 100.0%; Pred. No. 5,4e-26;

Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 1 YCKNGGFRLRHPDGRVGVREKSDPHIKLOQAEERGVSIGKV 45

Db 1 YCKNGGFRLRHPDGRVGVREKSDPHIKLOQAEERGVSIGKV 45

RESULT 3

AA18551

ID AA18551 standard; peptide; 45 AA.

XX AA18551;

AC 15-JAN-2001 (first entry)

XX 15-JAN-2001 (first entry)

DT Immunogenic peptide fragment derived from FGF and/or VEGF.

DE Immunogenic peptide fragment derived from FGF and/or VEGF.

XX Immunogenic peptide; fibroblast growth factor; FGF; VEGF; cancer;

KW vascular endothelial growth factor; hyperproliferative disorder;

KW haemangioma; solid tumour; blood borne tumour; leukaemia; metastasis;

KW telangiectasia; psoriasis; scleroderma; pyogenic granuloma;

KW myocardial angiogenesis; Crohn's disease; plaque neovascularisation;

KW arteriovenous malformation; corneal disease; rubecosis;

KW neovascular glaucoma; diabetic retinopathy; retrolental fibroplasia;

KW arthritis; diabetic neovascularisation; macular degeneration;

KW wound healing; peptic ulcer; Helicobacter related disease; fracture;

KW keloid; vasculogenesis; hematopoiesis; ovulation; menstruation;

KW placental; cat scratch fever.

XX Unidentified.

OS WO200053219-A2.

XX 14-SEP-2000.

PD 10-MAR-2000; 2000WO-US06320.

XX 11-MAR-1999; 99US-0266543.

PR (ENTRE-) ENTREMED INC.

XX Holaday JW, Ruiz A, Madsen J;

XX WPI; 2000-594263/56.

DR An immunogenic composition useful for treating cancer or

XX hyperproliferative disorders comprises an immunogenic peptide fragment

PT of fibroblast growth factor and/or vascular endothelial growth factor -

XX Disclosure; Page 28; 95pp; English.

XX AA18542-51 represent immunogenic peptide fragments of fibroblast

CC growth factor (FGF) and/or vascular endothelial growth factor (VEGF).

CC The peptides are used to produce immunogenic compositions. The

CC immunogenic composition is used for treating cancer or

CC hyperproliferative disorders, especially haemangioma, solid tumour,

CC blood borne tumours, leukaemia, metastasis, telangiectasia, psoriasis,

CC scleroderma, pyogenic granuloma, myocardial angiogenesis, Crohn's

CC disease, plaque neovascularisation, arteriovenous malformations,

CC corneal diseases, rubecosis, neovascular glaucoma, diabetic retinopathy,

CC retrolental fibroplasia, arthritis, diabetic neovascularisation, macular

CC degeneration, wound healing, peptic ulcer, Helicobacter related

CC diseases, fractures, keloids, vasculogenesis, hematopoiesis, ovulation,

CC menstruation, placental and cat scratch fever.

XX Sequence 45 AA;

SO Query Match 100.0%; Score 239; DB 21; Length 45;

Best Local Similarity 100.0%; Pred. No. 5,4e-26;

Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;



OY 1 YCKNGGFPLRIHPDGRVGVREKSPDHKIQLOAERGVSIGKV 45  
 DB 1 YCKNGGFPLRIHPDGRVGVREKSPDHKIQLOAERGVSIGKV 45

RESULT 4  
 AAP81933  
 ID AAP81933 standard; protein; 86 AA.  
 XX AAP81933;  
 AC AAP81933;  
 XX 25-MAR-2003 (updated)  
 DT 26-OCT-1990 (first entry)  
 XX  
 DE Human basic fibroblast growth factor mutein C86 from phage M13-PC86.  
 XX  
 KM Human basic fibroblast growth factor; human bFGF mutein C86;  
 KW growth promoting activity; growth stimulating activity; phage M13-PC86;  
 KM capillary endothelial cells; angiogenic activity.  
 XX  
 OS Synthetic.  
 XX  
 FH Key Location/Qualifiers  
 FT Misc-difference 87..87  
 FT /label=mutation Lys to stopcodon  
 FT /note="creates APl II recognition site"  
 XX  
 PN EP281822-A.  
 XX  
 PD 14-SEP-1988.  
 XX  
 PF 20-FEB-1988; 88EP-0102491.  
 XX  
 PR 24-FEB-1987; 87JP-0042218.  
 PR 25-FEB-1987; 87JP-0043444.  
 PR 02-APR-1987; 87JP-0081977.  
 PR 12-JUN-1987; 87JP-0147511.  
 PR 11-AUG-1987; 87JP-0201510.  
 PR 11-AUG-1987; 87JP-0201570.  
 PR 17-NOV-1987; 87JP-0290283.  
 PR 26-JAN-1988; 88JP-0016260.  
 PR 20-SEP-1988; 88JP-0235842.  
 XX  
 PA (TAKE ) TAKEDA CHEM IND LTD.  
 XX  
 PI Senoo M, Kurokawa T, Igarashi K, Sasada R;  
 DR N-PSDB; AAN81990.  
 DR WPI; 1988-258580/37.  
 XX  
 PT Mutein of basic fibroblast growth factor -  
 PT having fibroblast growth promoting activity, growth stimulating  
 PT activity of capillary endothelial cells and angiogenic activity.  
 XX  
 PS Disclosure; Page 1; 1pp; English.  
 XX  
 CC Using plasmid pTR796, E.coli MM294 was transformed, whereby the  
 CC strain E.coli MM294/pTR796 was obtained, which (IFO 14701, FERM BP-1661)  
 CC harbors the plasmid pTR796 expressing the mutein represented here.  
 CC The amino acid sequence Lys 87 to Ser 147 has been deleted.  
 CC The mutein has high stability and is low in toxicity.  
 CC It can be used as a healing accelerator for e.g. burns, wounds  
 CC or postoperative tissues or as a therapeutic drug based on its  
 CC angiogenic action for e.g. thrombosis or arteriosclerosis. It can also  
 CC be used as a reagent for acceleration of cell cultivation. A mutein  
 CC where at least one constituent cysteine is replaced by serine is  
 CC preferred because the mutein is highly stable and intermolecular bridges  
 CC and linkages are reduced or eliminated.  
 CC See also AAN81971-97.  
 CC (Updated on 25-MAR-2003 to correct PR field.)  
 CC (Updated on 25-MAR-2003 to correct PA field.)  
 CC (Updated on 25-MAR-2003 to correct PI field.)

XX SQ Sequence 86 AA;  
 Query Match 100.0%; Score 239; DB 9; Length 86;  
 Best Local Similarity 100.0%; Pred. No. 1.2e-25;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFPLRIHPDGRVGVREKSPDHKIQLOAERGVSIGKV 45  
 DB 25 YCKNGGFPLRIHPDGRVGVREKSPDHKIQLOAERGVSIGKV 69

RESULT 5  
 AAP90557  
 ID AAP90557 standard; protein; 101 AA.  
 XX AAP90557;  
 AC AAP90557;  
 XX 25-MAR-2003 (updated)  
 DT 31-OCT-2002 (updated)  
 DT 26-OCT-1989 (first entry)  
 XX  
 DE rhbFGF mutein CS102.  
 XX  
 KM Basic fibroblast growth factor; mutein CS102.  
 KW Homo sapiens.  
 XX  
 OS Homo sapiens.  
 XX  
 PN EP326907-A.  
 XX  
 PD 09-AUG-1989.  
 XX  
 PF 24-JAN-1989; 89EP-0101162.  
 XX  
 PR 26-JAN-1988; 88JP-0016260.  
 PR 19-AUG-1988; 88JP-0206968.  
 PR 20-SEP-1988; 88JP-0235842.  
 XX  
 PA (TAKE ) TAKEDA CHEM IND LTD.  
 XX  
 PI Senoo M, Sasada R, Kurokawa T, Igarashi K;  
 DR WPI; 1989-228965/32.  
 XX  
 PT Mutein of basic fibroblast growth factor - lacking carboxy terminal  
 PT amino acids, having growth promoting and angiogenic activities.  
 XX  
 PS Disclosure; Fig. 3; 41pp; english.  
 XX  
 CC rhbFGF mutein CS102 (encoded by AAN90401) lacks 46 C-terminal AAs of  
 CC basic fibroblast growth factor. It has high fibroblast growth  
 CC promoting, vasoendothelial cell growth promoting, and angiogenic  
 CC activities, and has high stability and low toxicity. It is used to  
 CC accelerate healing of, eg burns, wounds and postoperative tissues, as a  
 CC drug for thrombosis or arteriosclerosis, or as a reagent to accelerate  
 CC cell cultivation.  
 CC (Updated on 31-OCT-2002 to add missing OS field.)  
 CC (Updated on 25-MAR-2003 to correct PA field.)  
 XX  
 SQ Sequence 101 AA;  
 Query Match 100.0%; Score 239; DB 10; Length 101;  
 Best Local Similarity 100.0%; Pred. No. 1.5e-25;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFPLRIHPDGRVGVREKSPDHKIQLOAERGVSIGKV 45  
 DB 25 YCKNGGFPLRIHPDGRVGVREKSPDHKIQLOAERGVSIGKV 69

RESULT 6  
 AAP90558  
 ID AAP90558 standard; protein; 105 AA.

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XX AC AAP90558;
XX XX
DT 25-MAR-2003 (updated)
DT 31-OCT-2002 (updated)
DT 26-OCT-1989 (first entry)
DE rhbGF mutein CS105.
XX XX
KM Basic fibroblast growth factor; mutein CS105.
XX XX
OS Homo sapiens.
XX XX
PN EP326907-A.
XX XX
PD 09-AUG-1989.
XX XX
PF 24-JAN-1989; 89EP-0101162.
XX XX
PR 26-JAN-1988; 88JP-0016260.
PR 19-AUG-1988; 88JP-0206968.
PR 20-SEP-1988; 88JP-0235842.
XX XX
PA (TAKE ) TAKEDA CHEM IND LTD.
XX XX
PI Senoo M, Sasada R, Kurokawa T, Igarashi K;
XX XX
DR WPI; 1989-228965/32.
XX XX
PT Muteins of basic fibroblast growth factor - lacking carboxy terminal
XX XX
PS amino acids, having growth promoting and angiogenic activities.
XX XX
PS Disclosure; Fig. 4; 41pp; english.
XX XX
CC rhbGF mutein CS105 (encoded by AAN90402) lacks 42 C-terminal AAs of
CC basic fibroblast growth factor. It has high fibroblast growth
CC promoting, vasoendothelial cell growth promoting, and angiogenic
CC activities, and has high stability and low toxicity. It is used to
CC accelerate healing of, eg burns, wounds and postoperative tissues, as a
CC drug for thrombosis or arteriosclerosis, or as a reagent to accelerate
CC cell cultivation.
CC (Updated on 31-OCT-2002 to add missing OS field.)
CC (Updated on 25-MAR-2003 to correct PA field.)
XX XX
SQ Sequence 105 AA;

Query Match 100.0%; Score 239; DB 10; Length 105;
Best Local Similarity 100.0%; Pred. No. 1.5e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFPLRIHPDGRVGVREKSDPHIKQLQAEERGVSVIKGV 45
DB 25 YCKNGFPLRIHPDGRVGVREKSDPHIKQLQAEERGVSVIKGV 69

RESULT 7
AAP90559
ID AAP90559 standard; peptide; 114 AA.
XX XX
AC AAP90559;
XX XX
DT 25-MAR-2003 (updated)
DT 31-OCT-2002 (updated)
DT 26-OCT-1989 (first entry)
DE rhbGF mutein C114.
XX XX
KM Basic fibroblast growth factor; mutein C114.
XX XX
OS Homo sapiens.
XX XX
PN EP326907-A.
XX XX

```

```

PD 09-AUG-1989.
XX XX
PF 24-JAN-1989; 89EP-0101162.
XX XX
PR 26-JAN-1988; 88JP-0016260.
PR 19-AUG-1988; 88JP-0206968.
PR 20-SEP-1988; 88JP-0235842.
XX XX
PA (TAKE ) TAKEDA CHEM IND LTD.
XX XX
PI Senoo M, Sasada R, Kurokawa T, Igarashi K;
XX XX
DR WPI; 1989-228965/32.
XX XX
PT Muteins of basic fibroblast growth factor - lacking carboxy terminal
XX XX
PS amino acids, having growth promoting and angiogenic activities.
XX XX
PS Disclosure; Fig. 5; 41pp; english.
XX XX
CC rhbGF mutein C114 (encoded by AAN90403) lacks 33 C-terminal amino acids
CC of basic fibroblast growth factor. It has high fibroblast growth
CC promoting, vasoendothelial cell growth promoting, and angiogenic
CC activities, and has high stability and low toxicity. It is used to
CC accelerate healing of, eg burns, wounds and postoperative tissues, as a
CC drug for thrombosis or arteriosclerosis, or as a reagent to accelerate
CC cell cultivation.
CC (Updated on 31-OCT-2002 to add missing OS field.)
CC (Updated on 25-MAR-2003 to correct PA field.)
XX XX
SQ Sequence 114 AA;

Query Match 100.0%; Score 239; DB 10; Length 114;
Best Local Similarity 100.0%; Pred. No. 1.7e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFPLRIHPDGRVGVREKSDPHIKQLQAEERGVSVIKGV 45
DB 25 YCKNGFPLRIHPDGRVGVREKSDPHIKQLQAEERGVSVIKGV 69

RESULT 8
AAP90560
ID AAP90560 standard; protein; 118 AA.
XX XX
AC AAP90560;
XX XX
DT 25-MAR-2003 (updated)
DT 31-OCT-2002 (updated)
DT 26-OCT-1989 (first entry)
DE rhbGF mutein C118.
XX XX
KM Basic fibroblast growth factor; mutein C118.
XX XX
OS Homo sapiens.
XX XX
PN EP326907-A.
XX XX
PD 09-AUG-1989.
XX XX
PF 24-JAN-1989; 89EP-0101162.
XX XX
PR 26-JAN-1988; 88JP-0016260.
PR 19-AUG-1988; 88JP-0206968.
PR 20-SEP-1988; 88JP-0235842.
XX XX
PA (TAKE ) TAKEDA CHEM IND LTD.
XX XX
PI Senoo M, Sasada R, Kurokawa T, Igarashi K;
XX XX
DR WPI; 1989-228965/32.
XX XX
PT Muteins of basic fibroblast growth factor - lacking carboxy terminal

```

PT amino acids, having growth promoting and angiogenic activities.  
 XX Disclosure; Fig. 6; 41pp; english.  
 PS  
 XX  
 CC rhbGF mutein C118 (encoded by AAN90404) lacks 29 C-terminal amino acids  
 CC of basic fibroblast growth factor. It has high fibroblast growth  
 CC promoting, vasodendelial cell growth promoting, and angiogenic  
 CC activities, and has high stability and low toxicity. It is used to  
 CC accelerate healing of, eg burns, wounds and postoperative tissues, as a  
 CC drug for thrombosis or arteriosclerosis, or as a reagent to accelerate  
 CC cell cultivation.  
 CC (Updated on 31-OCT-2002 to add missing OS field.)  
 CC (Updated on 25-MAR-2003 to correct PA field.)  
 CC  
 CC  
 SQ Sequence 118 AA;  
 Query Match 100.0%; Score 239; DB 10; Length 118;  
 Best Local Similarity 100.0%; Pred. No. 1.8e-25;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 Oy 1 YCKNGFFLRHHPDGRVGVREKSDPHIKLQLQAEERGVSIKGV 45  
 Db 25 YCKNGFFLRHHPDGRVGVREKSDPHIKLQLQAEERGVSIKGV 69  
 RESULT 9  
 ABB81292  
 ID ABB81292 standard; Protein; 121 AA.  
 AC ABB81292;  
 XX  
 XX  
 DT 21-AUG-2002 (first entry)  
 DE Human FGF2 core structure amino acid sequence.  
 XX  
 KW Fibroblast growth factor 9; FGF-9; cytosolic; vulnery; osteopathic;  
 KW antiarthritic; vasculogenesis; angiogenesis; FGFR; skeletal disorder;  
 KW fibroblast growth factor receptor; cancer; bone fracture healing;  
 KW bone growth; wound healing; achondroplasia; hypochondroplasia;  
 KW osteoporosis; cartilage defect; multiple myeloma.  
 XX  
 OS Homo sapiens.  
 XX  
 XX  
 PN WO200236732-A2.  
 PD 10-MAY-2002.  
 XX  
 XX  
 PF 18-OCT-2001; 2001WO-IL00962.  
 XX  
 XX  
 PR 31-OCT-2000; 2000IL-0139380.  
 XX  
 PA (PROC-) PROCHON BIOTEC LTD.  
 XX  
 XX  
 PI Bogin O, Adar R, Yayon A;  
 XX  
 DR WPI: 2002-479754/51.  
 XX  
 PT New variants of fibroblast growth factor, useful for treating skeletal  
 PT disorders including osteoporosis, malignancies and to enhance wound and  
 PT fracture healing -  
 XX  
 PS Disclosure; Fig 1; 74pp; English.  
 XX  
 CC The present invention describes an active variant (I) of a fibroblast  
 CC growth factor (FGF) having at least one mutation in the beta-8-beta-9  
 CC loop, having enhanced specificity for one receptor subtype compared to  
 CC the corresponding wild type FGF, by decreasing the biological activity  
 CC mediated by at least one receptor subtype while retaining the activity  
 CC mediated through another receptor subtype. (I) has cytosolic, vulnery,  
 CC osteopathic and antiarthritic activities. (I) can be used as a regulator  
 CC of vasculogenesis or angiogenesis. (I) is useful for preparing a  
 CC medicament and for treating a disease or disorder related to normal or  
 CC abnormal FGF receptors (FGFRs), especially skeletal disorders, cancer,

CC to enhance bone fracture healing or bone growth processes and wound  
 CC healing processes. (I) is useful in detection and treatment of various  
 CC FGFR related disorders including skeletal disorders e.g. achondroplasia,  
 CC hypochondroplasia, and osteoporosis, and cartilage defects, multiple  
 CC myeloma, epithelial cancers such as transitional cell carcinoma of the  
 CC bladder and cervical carcinoma. The novel mutants are useful in high  
 CC expression systems suitable for pharmaceutical production, targeting of  
 CC drugs or other agents to tissues and cells having specific FGFR  
 CC subtypes, and serve as template for the formation of improved agonists  
 CC and antagonists of FGFRs in various disorders such as skeletal  
 CC disorders and cancer. The present sequence represents a FGF core  
 CC structure amino acid sequence which is given in the exemplification of  
 CC the present invention.  
 CC  
 CC  
 SQ Sequence 121 AA;  
 Query Match 100.0%; Score 239; DB 23; Length 121;  
 Best Local Similarity 100.0%; Pred. No. 1.8e-25;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 Oy 1 YCKNGFFLRHHPDGRVGVREKSDPHIKLQLQAEERGVSIKGV 45  
 Db 2 YCKNGFFLRHHPDGRVGVREKSDPHIKLQLQAEERGVSIKGV 46  
 RESULT 10  
 AAP90561  
 ID AAP90561 standard; peptide; 123 AA.  
 AC AAP90561;  
 XX  
 XX  
 DT 25-MAR-2003 (updated)  
 DT 31-OCT-2002 (updated)  
 DT 26-OCT-1989 (first entry)  
 DE rhbGF mutein C123.  
 XX  
 KW Basic fibroblast growth factor; mutein C123.  
 KW  
 KW  
 OS Homo sapiens.  
 XX  
 XX  
 PN EP326907-A.  
 XX  
 PD 09-AUG-1989.  
 XX  
 XX  
 PF 24-JAN-1989; 89EP-0101162.  
 XX  
 XX  
 PR 26-JAN-1988; 88JP-0016260.  
 PR 19-AUG-1988; 88JP-0206968.  
 PR 20-SEP-1988; 88JP-0235842.  
 XX  
 PA (TAKE ) TAKEDA CHEM IND LTD.  
 XX  
 XX  
 PI Senoo M, Sasada R, Kurokawa T, Igarashi K;  
 XX  
 DR WPI: 1989-228965/32.  
 XX  
 PT Muteins of basic fibroblast growth factor - lacking carboxy terminal  
 PT amino acids, having growth promoting and angiogenic activities.  
 XX  
 PS Disclosure; Fig. 7; 41pp; english.  
 XX  
 CC rhbGF mutein C123 (encoded by AAN90405) lacks 24 C-terminal amino acids  
 CC of basic fibroblast growth factor. It has high fibroblast growth  
 CC promoting, vasodendelial cell growth promoting, and angiogenic  
 CC activities, and has high stability and low toxicity. It is used to  
 CC accelerate healing of, eg burns, wounds and postoperative tissues, as a  
 CC drug for thrombosis or arteriosclerosis, or as a reagent to accelerate  
 CC cell cultivation.  
 CC (Updated on 31-OCT-2002 to add missing OS field.)  
 CC (Updated on 25-MAR-2003 to correct PA field.)  
 CC  
 CC  
 SQ Sequence 123 AA;

Query Match 100.0%; Score 239; DB 10; Length 123;  
 Best Local Similarity 100.0%; Pred. No. 1.9e-25;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVDGVREKSDPHIKLOLAEEGRGVSIKGV 45  
 |||||  
 DB 25 YCKNGFFLRHPDGRVDGVREKSDPHIKLOLAEEGRGVSIKGV 69

RESULT 11  
 AAP81940  
 ID AAP81940 standard; protein; 129 AA.

XX AC AAP81940;  
 XX DT 25-MAR-2003 (updated)  
 XX DT 26-OCT-1990 (first entry)  
 XX DE Human basic fibroblast growth factor mutein C129 from plasmid pTB856.  
 XX KM Human basic fibroblast growth factor; human bFGF mutein FINT.  
 XX KM growth promoting activity; growth stimulating activity; plasmid pTB856;  
 XX KM capillary endothelial cells; angiogenic activity.  
 XX OS Synthetic.

XX FH Key Location/Qualifiers  
 XX FT Misc-difference 129.129  
 XX FT /label=multiplication\_to\_stopcodon

XX PN EP281822-A.

XX PD 14-SEP-1988.

XX PF 20-FEB-1988; 88EP-0102491.

XX PR 24-FEB-1987; 87JP-0042218.

XX PR 25-FEB-1987; 87JP-0043444.

XX PR 02-APR-1987; 87JP-0081977.

XX PR 12-JUN-1987; 87JP-0147511.

XX PR 11-AUG-1987; 87JP-0201510.

XX PR 11-NOV-1987; 87JP-0290283.

XX PR 17-NOV-1987; 87JP-0016260.

XX PR 26-JAN-1988; 88JP-0235842.

XX PR 20-SEP-1988; 88JP-0235842.

XX PA (TAKE ) TAKEDA CHEM IND LTD.

XX PI Senoo M, Kurokawa T, Igarashi K, Sasada R;

XX DR WPI, 1988-258580/37.

XX DR N-PSDB; AAN8197.

XX PT Mutein of basic fibroblast growth factor -

XX PT having fibroblast growth promoting activity, growth stimulating

XX PT activity of capillary endothelial cells and angiogenic activity.

XX PS Disclosure; Page 7; 1pp; English.

XX XX Using plasmid pTB856, E.coli MM294 was transformed, whereby the

CC strain E.coli MM294/pTB856 was obtained, which harbors the plasmid

CC pTB856 expressing the mutein represented here. The amino acid

CC sequence from Lys130 to Ser147 has been deleted.

CC It can be used as a healing accelerator for e.g. burns, wounds

CC or postoperative tissues or as a therapeutic drug based on its

CC angiogenic action for e.g. thrombosis or arteriosclerosis. It can also

CC be used as a reagent for acceleration of cell cultivation. A mutein

CC where at least one constituent cysteine is replaced by serine is

CC preferred because the mutein is highly stable and intermolecular bridges

CC and linkages are reduced or eliminated.

CC See also AAN81971-97.

CC (Updated on 25-MAR-2003 to correct PR field.)  
 CC (Updated on 25-MAR-2003 to correct PA field.)  
 CC (Updated on 25-MAR-2003 to correct PI field.)

SQ Sequence 129 AA;

Query Match 100.0%; Score 239; DB 9; Length 129;  
 Best Local Similarity 100.0%; Pred. No. 2e-25;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVDGVREKSDPHIKLOLAEEGRGVSIKGV 45  
 |||||  
 DB 25 YCKNGFFLRHPDGRVDGVREKSDPHIKLOLAEEGRGVSIKGV 69

RESULT 12  
 AAP90562  
 ID AAP90562 standard; peptide; 129 AA.

XX AC AAP90562;  
 XX DT 25-MAR-2003 (updated)  
 XX DT 31-OCT-2002 (updated)  
 XX DT 26-OCT-1989 (first entry)  
 XX DE rhbFGF mutein C129.  
 XX KM Basic fibroblast growth factor; mutein C129.

XX OS Homo sapiens.

XX PN EP326907-A.

XX PD 09-AUG-1989.

XX PF 24-JAN-1989; 89EP-0101162.

XX PR 26-JAN-1988; 88JP-0016260.

XX PR 19-AUG-1988; 88JP-0206968.

XX PR 20-SEP-1988; 88JP-0235842.

XX PA (TAKE ) TAKEDA CHEM IND LTD.

XX PI Senoo M, Sasada R, Kurokawa T, Igarashi K;

XX DR WPI, 1989-228965/32.

XX PT Muteins of basic fibroblast growth factor - lacking carboxy terminal

XX PT amino acids, having growth promoting and angiogenic activities.

XX PS Disclosure; claim 8, page 22; Fig. 8; 41pp; english.

XX XX rhbFGF mutein C129 (encoded by AAN90406) lacks 18 C-terminal amino acids

CC of basic fibroblast growth factor. It has high fibroblast growth

CC promoting, vasoendothelial cell growth promoting, and angiogenic

CC activities, and has high stability and low toxicity. It is used to

CC accelerate healing of, eg burns, wounds and postoperative tissues, as a

CC drug for thrombosis or arteriosclerosis, or as a reagent to accelerate

CC cell cultivation. Cys 70 and Cys 88 may be replaced by Ser (see

CC AAN90564).

CC (Updated on 31-OCT-2002 to add missing OS field.)

CC (Updated on 25-MAR-2003 to correct PA field.)

CC SQ Sequence 129 AA;

QY Query Match 100.0%; Score 239; DB 10; Length 129;

CC Best Local Similarity 100.0%; Pred. No. 2e-25;

CC Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVDGVREKSDPHIKLOLAEEGRGVSIKGV 45

DB 25 YCKNGFFLRHPDGRVDGVREKSDPHIKLOLAEEGRGVSIKGV 69

RESULT 13
AAP90564
ID AAP90564 standard; protein; 129 AA.
XX
AC AAP90564;
XX
DT 25-MAR-2003 (updated)
DT 31-OCT-2002 (updated)
DT 26-OCT-1989 (first entry)
XX
DE rhbFGF mutein CS23C129.
XX
KW Basic fibroblast growth factor; mutein CS23C129.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Modified-site 70
FT Modified-site 88
XX
PN EP326907-A.
XX
PD 09-AUG-1989.
XX
PF 24-JAN-1989; 89EP-0101162.
XX
PR 26-JAN-1988; 88JP-0016260.
PR 19-AUG-1988; 88JP-0206968.
PR 20-SEP-1988; 88JP-0235842.
XX
PA (TAKE ) TAKEDA CHEM IND LTD.
XX
PI Senoo M, Saeeda R, Kurokawa T, Igataashi K;
XX
DR WPI; 1989-228965/32.
XX
PT Muteins of basic fibroblast growth factor - lacking carboxy terminal
PT amino acids, having growth promoting and angiogenic activities.
XX
PS Disclosure: Fig. 13; 41PP; english.
XX
CC rhbFGF mutein CS23C129 (encoded by AAN90408) lacks 18 C-terminal AAs
CC of basic fibroblast growth factor. It has high fibroblast growth
CC promoting, vasendothelial cell growth promoting, and angiogenic
CC activities, and has high stability and low toxicity. It is used to
CC accelerate healing of, eg burns, wounds and postoperative tissues, as a
CC drug for thrombosis or arteriosclerosis, or as a reagent to accelerate
CC cell cultivation. Cys 70 and Cys 88 have been replaced by Ser
CC (see AAP90562).
CC (Updated on 31-OCT-2002 to add missing OS field.)
CC (Updated on 25-MAR-2003 to correct PA field.)
XX
SQ Sequence 129 AA;
Query Match 100.0%; Score 239; DB 10; Length 129;
Best Local Similarity 100.0%; Pred. No. 2e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0
OY 1 YCKNGGFRLRIHPDGRVGVREKSPPHIKLQLQAERGVSIXGV 45   DB 25 YCKNGGFRLRIHPDGRVGVREKSPPHIKLQLQAERGVSIXGV 69
RESULT 14
AAI17995
ID AAI17995 standard; protein; 132 AA.
XX
AC AAI17995;
XX
DT 16-AUG-1999 (first entry)
XX
DE Human basic fibroblast growth factor (FGF).

XX	Fusion protein; leader peptide; fermentation; interleukin-1; IL-1;
KW	leaderless fusion protein; fibroblast growth factor; FGF.
XX	
OS	Homo sapiens.
PN	US5914254-A.
XX	
PD	22-JUN-1999.
XX	
PF	12-MAY-1997; 97US-0854811.
XX	
PR	12-MAY-1997; 97US-0854811.
PR	02-AUG-1993; 93US-0100744.
PR	02-AUG-1994; 94US-0284784.
XX	
PA	(CELL-) CELTRIX PHARM INC.
PI	Cohen PA, Mascarenhas D, Nguyen KB, Olsen DR, Olson PS;
PI	Zhang Y;
XX	
DR	WPI; 1999-370500/31.
XX	
PS	Recombinant production of fusion proteins
XX	
PT	Example 2; Fig 1; 80pp; English.
XX	
CC	The invention relates to recombinant production of fusion proteins using
CC	fusion partners that lack leader sequences. The nucleic acids, vectors,
CC	host cells and methods disclosed may be used to recombinantly produce
CC	large quantities of fusion proteins, in which the fusion partner lacks a
CC	leader sequence, via fermentation culture according to standard
CC	recombinant DNA methodologies. The polypeptide of interest is cleaved
CC	away from the rest of the fusion protein by proteolytic digestion. A
CC	variety of polypeptides may be produced in this manner including
CC	enzymes, growth factors, single chain antibodies DNA/RNA-binding
CC	proteins, membrane receptors, mutant IGFp-3s and fragments of them.
CC	Additionally, the invention may be used in the screening of libraries of
CC	random polypeptides by assays for their biological function. When fused
CC	to an interleukin-1-like (IL-1-like) polypeptide, the random peptides
CC	accumulate in a protected cellular compartment in a soluble active form.
CC	Leaderless fusion proteins may be produced in a wide variety of host
CC	cells (e.g. Escherichia coli), in a soluble, active and easily
CC	recoverable form at temperature at or close to the physiological optima
CC	for host cell growth. A wide variety of polypeptides, including those
CC	that are otherwise unstable or insoluble may be expressed as fusions
CC	with the IL-1-like polypeptides or other leader deleted translocating
CC	peptides. Sequences AA17992-996 represent five members of the IL-1-like
CC	protein family.
XX	
XX	Sequence 132 AA;
XX	
XX	Query Match 100.0%; Score 239; DB 20; Length 132;
XX	Best Local Similarity 100.0%; Pred. No. 2e-25;
XX	Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0
QY	1 YCKNGGFRLRHPDGRVDGVREKSDPHIKQLQLEERGVSIVIKGV 45
DB	10 YCKNGGFRLRHPDGRVDGVREKSDPHIKQLQLEERGVSIVIKGV 54
XX	
XX	RESULT 15
XX	AA81932
XX	AA81932 standard; protein; 134 AA.
XX	AA81932;
XX	
XX	25-MAR-2003 (updated)
DT	26-OCT-1990 (first entry)
XX	
DE	Human basic fibroblast growth factor mutein N14 from phage M13-PN14.
XX	
XX	Human basic fibroblast growth factor; human bFGF mutein N14;
XX	



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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:35:33 ; Search time 19.1538 Seconds  
(without alignments)  
99.405 Million cell updates/sec

Title: US-09-266-543-1  
Perfect score: 239  
Sequence: 1 YCKNGGFLRIHPDGRVDGV.....PHIKLQLAERGVSIGKV 45

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 328717 seqs, 42310858 residues

Total number of hits satisfying chosen parameters: 328717

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Issued Patents, AA:  
1: /cgn2\_6/ptodata/1/1aa/5A\_COMB.pep:\*  
2: /cgn2\_6/ptodata/1/1aa/5B\_COMB.pep:\*  
3: /cgn2\_6/ptodata/1/1aa/6A\_COMB.pep:\*  
4: /cgn2\_6/ptodata/1/1aa/6B\_COMB.pep:\*  
5: /cgn2\_6/ptodata/1/1aa/PTCUTS\_COMB.pep:\*  
6: /cgn2\_6/ptodata/1/1aa/backfiles1.pep:\*  
  
Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	239	100.0	132	1	US-08-100-744-4 Sequence 4, Appl1
2	239	100.0	132	2	US-08-284-784-4 Sequence 4, Appl1
3	239	100.0	132	2	US-08-854-811-4 Sequence 4, Appl1
4	239	100.0	140	5	PCT-US90-06962-1 Sequence 1, Appl1
5	239	100.0	145	1	US-07-830-330-1 Sequence 1, Appl1
6	239	100.0	145	1	US-08-187-780-3 Sequence 3, Appl1
7	239	100.0	145	4	US-08-478-485-3 Sequence 3, Appl1
8	239	100.0	145	4	US-08-478-485-3 Sequence 3, Appl1
9	239	100.0	146	2	US-08-231-894A-11 Sequence 11, Appl1
10	239	100.0	146	2	US-08-231-894A-12 Sequence 12, Appl1
11	239	100.0	146	2	US-08-231-894A-13 Sequence 13, Appl1
12	239	100.0	146	2	US-08-231-894A-14 Sequence 14, Appl1
13	239	100.0	146	3	US-09-105-678A-49 Sequence 49, Appl1
14	239	100.0	146	3	US-09-421-208-49 Sequence 49, Appl1
15	239	100.0	146	4	US-09-385-114-2 Sequence 2, Appl1
16	239	100.0	146	4	US-09-385-114-2 Sequence 2, Appl1
17	239	100.0	146	4	US-09-417-721-3 Sequence 3, Appl1
18	239	100.0	146	4	US-09-417-721-5 Sequence 5, Appl1
19	239	100.0	146	6	5464943-6 Patent No. 5464943
20	239	100.0	146	6	5464943-8 Patent No. 5464943
21	239	100.0	146	6	5464943-10 Patent No. 5464943
22	239	100.0	146	6	5464943-12 Patent No. 5464943
23	239	100.0	146	6	5464943-14 Patent No. 5464943
24	239	100.0	146	6	5464943-25 Patent No. 5464943
25	239	100.0	146	6	5464943-26 Patent No. 5464943
26	239	100.0	147	6	5175147-8 Patent No. 5175147
27	239	100.0	147	6	5314872-1 Patent No. 5314872

28	239	100.0	150	1	US-08-441-629-8 Sequence 8, Appl1
29	239	100.0	150	3	US-08-776-207-8 Sequence 8, Appl1
30	239	100.0	150	4	US-09-507-773-8 Sequence 8, Appl1
31	239	100.0	150	5	PCT-US95-09172-8 Sequence 2, Appl1
32	239	100.0	153	3	US-08-325-186-2 Sequence 2, Appl1
33	239	100.0	154	2	US-08-438-439C-24 Sequence 24, Appl1
34	239	100.0	154	3	US-08-325-186-1 Sequence 1, Appl1
35	239	100.0	154	5	PCT-US91-02186-6 Sequence 6, Appl1
36	239	100.0	155	1	US-07-959-369-6 Sequence 7, Appl1
37	239	100.0	155	1	US-07-959-369-7 Sequence 7, Appl1
38	239	100.0	155	1	US-08-023-757-2 Sequence 2, Appl1
39	239	100.0	155	1	US-08-023-757-4 Sequence 2, Appl1
40	239	100.0	155	1	US-07-842-177A-1 Sequence 1, Appl1
41	239	100.0	155	1	US-08-177-502-2 Sequence 2, Appl1
42	239	100.0	155	1	US-08-177-502-4 Sequence 4, Appl1
43	239	100.0	155	1	US-08-439-725A-10 Sequence 10, Appl1
44	239	100.0	155	1	US-08-325-632-1 Sequence 1, Appl1
45	239	100.0	155	1	US-08-462-169B-10 Sequence 10, Appl1

ALIGNMENTS

RESULT 1  
US-08-100-744-4  
; Sequence 4, Application US/08100744  
; Patent No. 5563046  
; GENERAL INFORMATION:  
; APPLICANT: MASCARENHAS, DESMOND  
; APPLICANT: ZHANG, SUNNY  
; APPLICANT: OLSON, PAMELA  
; APPLICANT: OLSEN, DAVID  
; APPLICANT: CARRILLO, PEDRO A.  
; TITLE OF INVENTION: POLYPEPTIDE FUSIONS TO  
; TITLE OF INVENTION: INTERLEUKIN-1-LIKE POLYPEPTIDES  
; NUMBER OF SEQUENCES: 12  
; CORRESPONDENCE ADDRESSES:  
; ADDRESS: MORRISON & FOERSTER  
; STREET: 755 Page Mill Road  
; CITY: Palo Alto  
; STATE: California  
; COUNTRY: USA  
; ZIP: 94304-1018  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patentin Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/100,744  
; FILING DATE: 02-AUG-1993  
; CLASSIFICATION: 435  
; ATTORNEY/AGENT INFORMATION:  
; NAME: LUTHER, BARBARA J.  
; REGISTRATION NUMBER: 33,954  
; REFERENCE/DOCKET NUMBER: 220955-20275.00  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 813-5600  
; TELEFAX: (415) 494-0792  
; TELEK: 706141  
; INFORMATION FOR SEQ ID NO: 4:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 132 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; US-08-100-744-4  
  
Query Match 100.0%; Score 239; DB 1; Length 132;  
Best Local Similarity 100.0%; Pred. No. 1.6e-27;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 YCKNGGFLRIHPDGRVDGVRKSPHIKQLQLAERGVSIGKV 45

Db 10 YKNGGFFLRHPDGRVGVREKSPHIKLOQAERGVSIGKV 54

RESULT 2  
US-08-284-784-4  
Sequence 4, Application US/08284784  
Patent No. 5629172

GENERAL INFORMATION:

APPLICANT: MASCARENHAS, DESMOND

APPLICANT: ZHANG, YANG

APPLICANT: OLSEN, PAMELA S.

APPLICANT: OLSEN, DAVID R.

APPLICANT: CARILLO, PEDRO A.

TITLE OF INVENTION: EXPRESSION OF FUSION POLYPEPTIDES

TITLE OF INVENTION: TRANSPORTED OUT OF THE CYTOPLASM WITHOUT LEADER SEQUENCES

NUMBER OF SEQUENCES: 44

CORRESPONDENCE ADDRESS:

ADDRESSEE: MORRISON & FOERSTER

STREET: 755 Page Mill Road

CITY: Palo Alto

STATE: California

COUNTRY: USA

ZIP: 94304-1018

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

OPERATING SYSTEM: IBM PC compatible

SOFTWARE: Patent Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/284,784

FILING DATE: 02-AUG-1994

CLASSIFICATION: 530

ATTORNEY/AGENT INFORMATION:

NAME: PARK, FREDIE K.

REGISTRATION NUMBER: 35,636

REFERENCE/DOCKET NUMBER: 22095-20275.20

TELECOMMUNICATION INFORMATION:

TELEPHONE: (415) 813-5600

TELEFAX: (415) 494-0792

TELEX: 706141

INFORMATION FOR SEQ ID NO: 4:

SEQUENCE CHARACTERISTICS:

LENGTH: 132 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

US-08-284-784-4

Query Match 100.0%; Score 239; DB 1; Length 132;

Best Local Similarity 100.0%; Pred. No. 1.6e-27;

Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 10 YKNGGFFLRHPDGRVGVREKSPHIKLOQAERGVSIGKV 54

RESULT 3  
US-08-854-811-4  
Sequence 4, Application US/08854811  
Patent No. 5914254

GENERAL INFORMATION:

APPLICANT: MASCARENHAS, Desmond

APPLICANT: Zhang, Yang

APPLICANT: Olson, Pamela S.

APPLICANT: Olsen, David R.

APPLICANT: Cohen, Pedro A.

TITLE OF INVENTION: EXPRESSION OF FUSION POLYPEPTIDES

TITLE OF INVENTION: TRANSPORTED OUT OF THE CYTOPLASM WITHOUT LEADER

NUMBER OF SEQUENCES: 49

CORRESPONDENCE ADDRESS:

ADDRESSEE: MORRISON & FOERSTER

STREET: 755 PAGE MILL ROAD

CITY: Palo Alto

STATE: CA

COUNTRY: USA

ZIP: 94304-1018

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette

OPERATING SYSTEM: Windows

SOFTWARE: FastSeq for Windows Version 2.0b

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/854,811

FILING DATE: 12-MAY-1997

CLASSIFICATION: 435

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 08/284,784

FILING DATE: 02-AUG-1994

APPLICATION NUMBER: 08/100,744

FILING DATE: 02-AUG-1993

ATTORNEY/AGENT INFORMATION:

NAME: Buflinger, Nicholas S

REGISTRATION NUMBER: 39,124

REFERENCE/DOCKET NUMBER: 22095-20275.21

TELECOMMUNICATION INFORMATION:

TELEPHONE: 650-813-5600

TELEFAX: 650-494-0792

TELEX: 706141

INFORMATION FOR SEQ ID NO: 4:

SEQUENCE CHARACTERISTICS:

LENGTH: 132 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

US-08-854-811-4

Query Match 100.0%; Score 239; DB 2; Length 132;

Best Local Similarity 100.0%; Pred. No. 1.6e-27;

Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 10 YKNGGFFLRHPDGRVGVREKSPHIKLOQAERGVSIGKV 54

RESULT 4  
PCT-US90-06962-1  
Sequence 1, Application PC/TUS9006962

GENERAL INFORMATION:

APPLICANT: Baird, J. A.

APPLICANT: Hajjar, David P.

TITLE OF INVENTION: Treatment of HSV

NUMBER OF SEQUENCES: 2

CORRESPONDENCE ADDRESS:

ADDRESSEE: Fitch, Even, Tabin & Flannery

STREET: 135 South LaSalle Street, Suite 900

CITY: Chicago

STATE: Illinois

COUNTRY: USA

ZIP: 60603

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

OPERATING SYSTEM: IBM PC compatible

SOFTWARE: Patent Release #1.24

CURRENT APPLICATION DATA:

APPLICATION NUMBER: PCT/US90/06962

FILING DATE: 19901129

CLASSIFICATION: A61B6/00

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 07/443,939

FILING DATE: 30-NOV-1989

ATTORNEY/AGENT INFORMATION:



NAME: Schumann, James J.  
REGISTRATION NUMBER: 20856  
REFERENCE/DOCKET NUMBER: 50742  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (619)552-1311  
TELEFAX: (619)552-0095  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 157 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
PCT-US90-06962-1

Query Match 100.0%; Score 239; DB 5; Length 140;  
Best Local Similarity 100.0%; Pred. No. 1.8e-27;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 YCKNGGFLRIHPDGRVDGVRKSPHIKLOQAERGVSISKV 45  
Db 35 YCKNGGFLRIHPDGRVDGVRKSPHIKLOQAERGVSISKV 79

RESULT 5  
US-07-830-330-1  
Sequence 1, Application US/07830330  
Patent No. 5288704

GENERAL INFORMATION:  
APPLICANT: Ungheri, Domenico  
APPLICANT: Garofano, Luisa  
APPLICANT: Battistini, Carlo  
APPLICANT: Carminali, Paolo  
APPLICANT: Mazze, Guy  
TITLE OF INVENTION: SYNERGISTIC COMPOSITION COMPRISING A  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR AND A SULFATED POLYSACCHARIDE,  
NUMBER OF SEQUENCES: 15  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: OBLON, SPIVAK, MCCLELLAND, MATER & NEUSTADT,  
ADDRESS: P.C.  
STREET: 1755 Jefferson Davis Highway, Fourth Floor  
CITY: Arlington  
STATE: Virginia  
ZIP: 22202

## COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/830,330  
FILING DATE: 19920420

## CLASSIFICATION: 424

ATTORNEY/AGENT INFORMATION:  
NAME: Oblon, No. 5288704man F.  
REGISTRATION NUMBER: 24,618  
REFERENCE/DOCKET NUMBER: 769-230-0  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (703)521-4500  
TELEFAX: (703)486-2347

## INFORMATION FOR SEQ ID NO: 1:

SEQUENCE CHARACTERISTICS:  
LENGTH: 145 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
ORIGINAL SOURCE:  
ORGANISM: Homo sapiens

US-07-830-330-1

Query Match 100.0%; Score 239; DB 1; Length 145;  
Best Local Similarity 100.0%; Pred. No. 1.8e-27;

Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
Qy 1 YCKNGGFLRIHPDGRVDGVRKSPHIKLOQAERGVSISKV 45  
Db 24 YCKNGGFLRIHPDGRVDGVRKSPHIKLOQAERGVSISKV 68

RESULT 6  
US-08-187-780-3  
Sequence 3, Application US/08187780  
Patent No. 5459250

GENERAL INFORMATION:  
APPLICANT: CLAUDIO BASILICO  
APPLICANT: DANIELA TALARICO  
TITLE OF INVENTION: MAMMALIAN GROWTH FACTOR  
NUMBER OF SEQUENCES: 8  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Darby & Darby P.C.  
STREET: 805 Third Avenue  
CITY: New York  
STATE: New York  
COUNTRY: USA  
ZIP: 10022

## COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 5.25 inch,  
MEDIUM TYPE: 360 Kb storage  
COMPUTER: IBM or IBM-compatible  
OPERATING SYSTEM: PC/MS-DOS  
SOFTWARE: Wordperfect  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/187,780  
FILING DATE: January 25, 1994  
CLASSIFICATION: 530

## PRIOR APPLICATION DATA:

APPLICATION NUMBER: 07/901,705  
FILING DATE: June 22, 1992  
APPLICATION NUMBER: 07/806,771  
FILING DATE: December 6, 1991  
APPLICATION NUMBER: 07/177,506  
FILING DATE: April 4, 1988  
APPLICATION NUMBER: 07/062,925  
FILING DATE: June 16, 1987

## ATTORNEY/AGENT INFORMATION:

NAME: Howard M. Frankfort  
REGISTRATION NUMBER: 32,613  
REFERENCE/DOCKET NUMBER: 5966/13586-US3  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 527-7700  
TELEFAX: (212) 753-6237  
INFORMATION FOR SEQ ID NO: 3:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 145

TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: Protein  
DESCRIPTION: Protein  
FEATURE:

## NAME/KEY:

LOCATION:  
IDENTIFICATION METHOD:  
OTHER INFORMATION: This sequence,  
OTHER INFORMATION: corresponding to bovine basic fibroblast  
OTHER INFORMATION: growth factor, can be found in Table 1,  
OTHER INFORMATION: page 9, lines 9, 14, and 19, in the  
OTHER INFORMATION: application, as filed.  
PUBLICATION INFORMATION:

## AUTHORS:

TITLE:  
JOURNAL:  
VOLUME:  
ISSUE:  
PAGES:

DATE:  
DOCUMENT NUMBER:  
FILING DATE:  
PUBLICATION DATE:  
RELEVANT RESIDUES IN SEQ ID NO: 1-145  
US-08-187-780-3

Query Match 100.0%; Score 239; DB 1; Length 145;  
Best Local Similarity 100.0%; Pred. No. 1.8e-27;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YKNGGFLLRIHPDGRVGVREKSPHIXLQLOAERGVSIXGV 45  
DB 24 YKNGGFLLRIHPDGRVGVREKSPHIXLQLOAERGVSIXGV 68

RESULT 7  
US-08-478-485-3  
Sequence 3, Application US/08478485  
Patent No. 5883071  
GENERAL INFORMATION:  
APPLICANT: CLAUDIO BASILICO  
APPLICANT: DANIELA TALARICO  
TITLE OF INVENTION: MAMMALIAN GROWTH FACTOR  
NUMBER OF SEQUENCES: 8  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Darby & Darby P.C.  
STREET: 805 Third Avenue  
CITY: New York  
STATE: New York  
COUNTRY: USA  
ZIP: 10022  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy diskette, 3+ inch,  
MEDIUM TYPE: 1.44 MB storage  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC/MS-DOS  
SOFTWARE: Wordperfect 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/478,485  
FILING DATE: Concurrently Herewith  
CLASSIFICATION: 424  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 08/187,780  
FILING DATE: January 25, 1994  
APPLICATION NUMBER: 07/901,705  
FILING DATE: June 22, 1992  
APPLICATION NUMBER: 07/806,771  
FILING DATE: December 6, 1991  
APPLICATION NUMBER: 07/177,506  
FILING DATE: April 4, 1988  
APPLICATION NUMBER: 07/062,925  
FILING DATE: June 16, 1987  
ATTORNEY/AGENT INFORMATION:  
NAME: Joseph R. Robinson  
REGISTRATION NUMBER: 33,448  
REFERENCE/DOCKET NUMBER: 5986/13586-US6  
TELEPHONE: (212) 527-7700  
TELEFAX: (212) 753-6237  
INFORMATION FOR SEQ ID NO: 3:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 145  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: Protein  
FEATURE:  
NAME/KEY:  
LOCATION:  
IDENTIFICATION METHOD:  
OTHER INFORMATION: This sequence,

OTHER INFORMATION: corresponding to bovine basic fibroblast  
OTHER INFORMATION: growth factor, can be found in Table 1,  
OTHER INFORMATION: page 9, lines 9, 14, and 19, in the  
OTHER INFORMATION: application, as filed.  
PUBLICATION INFORMATION:  
AUTHORS:  
TITLE:  
JOURNAL:  
VOLUME:  
ISSUE:  
PAGES:  
DATE:  
DOCUMENT NUMBER:  
FILING DATE:  
PUBLICATION DATE:  
RELEVANT RESIDUES IN SEQ ID NO: 1-145  
US-08-478-485-3

Query Match 100.0%; Score 239; DB 2; Length 145;  
Best Local Similarity 100.0%; Pred. No. 1.8e-27;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YKNGGFLLRIHPDGRVGVREKSPHIXLQLOAERGVSIXGV 45  
DB 24 YKNGGFLLRIHPDGRVGVREKSPHIXLQLOAERGVSIXGV 68

RESULT 8  
US-08-478-486F-3  
Sequence 3, Application US/08478486F  
Patent No. 6432702  
GENERAL INFORMATION:  
APPLICANT: CLAUDIO BASILICO  
APPLICANT: DANIELA TALARICO  
TITLE OF INVENTION: MAMMALIAN GROWTH FACTOR  
NUMBER OF SEQUENCES: 12  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Darby & Darby P.C.  
STREET: 805 Third Avenue  
CITY: New York  
STATE: New York  
COUNTRY: USA  
ZIP: 10022  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy diskette, 3+ inch,  
MEDIUM TYPE: 1.44 MB storage  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC/MS-DOS  
SOFTWARE: Wordperfect 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/478,486F  
FILING DATE: June 7, 1995  
CLASSIFICATION: 536  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 08/187,780  
FILING DATE: January 25, 1994  
APPLICATION NUMBER: 07/901,705  
FILING DATE: June 22, 1992  
APPLICATION NUMBER: 07/806,771  
FILING DATE: December 6, 1991  
APPLICATION NUMBER: 07/177,506  
FILING DATE: April 4, 1988  
APPLICATION NUMBER: 07/062,925  
FILING DATE: June 16, 1987  
ATTORNEY/AGENT INFORMATION:  
NAME: Howard M. Frankfort  
REGISTRATION NUMBER: 32,613  
REFERENCE/DOCKET NUMBER: 5986/13586-US7  
TELEPHONE: (212) 527-7700  
TELEFAX: (212) 753-6237  
INFORMATION FOR SEQ ID NO: 3:  
SEQUENCE CHARACTERISTICS:

LENGTH: 145  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: Protein  
FEATURE:  
NAME/KEY:  
LOCATION:  
IDENTIFICATION METHOD:  
OTHER INFORMATION: This sequence,  
OTHER INFORMATION: corresponding to bovine basic fibroblast  
OTHER INFORMATION: growth factor, can be found in Table 1,  
OTHER INFORMATION: page 9, lines 9, 14, and 19, in the  
OTHER INFORMATION: application, as filed.  
US-08-478-486F-3

Query Match 100.0%; Score 239; DB 4; Length 145;  
Best Local Similarity 100.0%; Pred. No. 1.8e-27;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YKNGGFRLRHPDGRVGVREKSPHKLQQAERGVSIXGV 45  
DB 24 YKNGGFRLRHPDGRVGVREKSPHKLQQAERGVSIXGV 68

RESULT 9  
US-08-231-894A-11  
Sequence 11, Application US/08231894A  
Patent No. 5851990  
GENERAL INFORMATION:  
APPLICANT: FUJISHIMA, AKIRA  
APPLICANT: FUKUDA, TSUNEHICO  
TITLE OF INVENTION: BFGF MUTEIN AND ITS PRODUCTION  
NUMBER OF SEQUENCES: 15  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS  
ADDRESS: 130 WATER STREET  
CITY: BOSTON  
STATE: MASSACHUSETTS  
COUNTRY: US  
ZIP: 02109  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FASTSEQ Version 1.5  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/231, 894A  
FILING DATE: 22-APR-1994  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/873907  
FILING DATE: 24-APR-1992  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: JP 097655-1991  
FILING DATE: 26-APR-1991  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: JP 066381-1992  
FILING DATE: 24-MAR-1992  
ATTORNEY/AGENT INFORMATION:  
NAME: RESNICK, DAVID S.  
REGISTRATION NUMBER: 34235  
REFERENCE/DOCKET NUMBER: 41769-FWC  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (617) 523-3400  
TELEFAX: (617) 523-6440  
INFORMATION FOR SEQ ID NO: 11:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 146 amino acids  
TYPE: amino acid

STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
FRAGMENT TYPE: Internal  
ORIGINAL SOURCE:  
US-08-231-894A-11

Query Match 100.0%; Score 239; DB 2; Length 146;  
Best Local Similarity 100.0%; Pred. No. 1.9e-27;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YKNGGFRLRHPDGRVGVREKSPHKLQQAERGVSIXGV 45  
DB 24 YKNGGFRLRHPDGRVGVREKSPHKLQQAERGVSIXGV 68

RESULT 10  
US-08-231-894A-12  
Sequence 12, Application US/08231894A  
Patent No. 5851990  
GENERAL INFORMATION:  
APPLICANT: FUJISHIMA, AKIRA  
APPLICANT: FUKUDA, TSUNEHICO  
TITLE OF INVENTION: BFGF MUTEIN AND ITS PRODUCTION  
NUMBER OF SEQUENCES: 15  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS  
ADDRESS: 130 WATER STREET  
CITY: BOSTON  
STATE: MASSACHUSETTS  
COUNTRY: US  
ZIP: 02109  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FASTSEQ Version 1.5  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/231, 894A  
FILING DATE: 22-APR-1994  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/873907  
FILING DATE: 24-APR-1992  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: JP 097655-1991  
FILING DATE: 26-APR-1991  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: JP 066381-1992  
FILING DATE: 24-MAR-1992  
ATTORNEY/AGENT INFORMATION:  
NAME: RESNICK, DAVID S.  
REGISTRATION NUMBER: 34235  
REFERENCE/DOCKET NUMBER: 41769-FWC  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (617) 523-3400  
TELEFAX: (617) 523-6440  
INFORMATION FOR SEQ ID NO: 12:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 146 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
FRAGMENT TYPE: Internal  
ORIGINAL SOURCE:  
US-08-231-894A-12

Query Match 100.0%; Score 239; DB 2; Length 146;  
Best Local Similarity 100.0%; Pred. No. 1.9e-27;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVGVREKSDPHIKLOLAERGVVSIKGV 45  
DB 24 YCKNGFFLRHPDGRVGVREKSDPHIKLOLAERGVVSIKGV 68

## RESULT 11

US-08-231-894A-13  
; Sequence 13, Application US/08231894A  
; Patent No. 5851990  
; GENERAL INFORMATION:  
; APPLICANT: FUJISHIMA, AKIRA  
; APPLICANT: FUKUDA, TSUNEHIKO  
; TITLE OF INVENTION: BRGF MUTEIN AND ITS PRODUCTION  
; NUMBER OF SEQUENCES: 15  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS  
; STREET: 130 WATER STREET  
; CITY: BOSTON  
; STATE: MASSACHUSETTS  
; COUNTRY: US  
; ZIP: 02109  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Diskette  
; COMPUTER: IBM Compatible  
; OPERATING SYSTEM: DOS  
; SOFTWARE: FastSeq Version 1.5  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/231,894A  
; FILING DATE: 22-APR-1994  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/873907  
; FILING DATE: 24-APR-1992  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: JP 097655-1991  
; FILING DATE: 26-APR-1991  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: JP 066381-1992  
; FILING DATE: 24-MAR-1992  
; ATTORNEY/AGENT INFORMATION:  
; NAME: RESNICK, DAVID S.  
; REGISTRATION NUMBER: 34235  
; REFERENCE/DOCKET NUMBER: 41769-FWC  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (617) 523-3400  
; TELEFAX: (617) 523-6440  
; INFORMATION FOR SEQ ID NO: 13:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 146 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO  
; ANTI-SENSE: NO  
; FRAGMENT TYPE: internal  
; ORIGINAL SOURCE:  
; US-08-231-894A-13

Query Match 100.0%; Score 239; DB 2; Length 146;  
Best Local Similarity 100.0%; Pred. No. 1.9e-27;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVGVREKSDPHIKLOLAERGVVSIKGV 45  
DB 24 YCKNGFFLRHPDGRVGVREKSDPHIKLOLAERGVVSIKGV 68

RESULT 12  
US-08-231-894A-14  
; Sequence 14, Application US/08231894A  
; Patent No. 5851990  
; GENERAL INFORMATION:  
; APPLICANT: FUJISHIMA, AKIRA  
; APPLICANT: FUKUDA, TSUNEHIKO  
; TITLE OF INVENTION: BRGF MUTEIN AND ITS PRODUCTION  
; NUMBER OF SEQUENCES: 15  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS  
; STREET: 130 WATER STREET  
; CITY: BOSTON  
; STATE: MASSACHUSETTS  
; COUNTRY: US  
; ZIP: 02109  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Diskette  
; COMPUTER: IBM Compatible  
; OPERATING SYSTEM: DOS  
; SOFTWARE: FastSeq Version 1.5  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/231,894A  
; FILING DATE: 22-APR-1994  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/873907  
; FILING DATE: 24-APR-1992  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: JP 097655-1991  
; FILING DATE: 26-APR-1991  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: JP 066381-1992  
; FILING DATE: 24-MAR-1992  
; ATTORNEY/AGENT INFORMATION:  
; NAME: RESNICK, DAVID S.  
; REGISTRATION NUMBER: 34235  
; REFERENCE/DOCKET NUMBER: 41769-FWC  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (617) 523-3400  
; TELEFAX: (617) 523-6440  
; INFORMATION FOR SEQ ID NO: 14:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 146 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: peptide  
; HYPOTHETICAL: NO  
; ANTI-SENSE: NO  
; FRAGMENT TYPE: internal  
; ORIGINAL SOURCE:  
; US-08-231-894A-14

Query Match 100.0%; Score 239; DB 2; Length 146;  
Best Local Similarity 100.0%; Pred. No. 1.9e-27;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVGVREKSDPHIKLOLAERGVVSIKGV 45  
DB 24 YCKNGFFLRHPDGRVGVREKSDPHIKLOLAERGVVSIKGV 68

RESULT 13  
US-08-231-894A-15  
; Sequence 15, Application US/08231894A  
; Patent No. 5851990  
; GENERAL INFORMATION:  
; APPLICANT: FUJISHIMA, AKIRA

```

APPLICANT: FUKUDA, TSUNEHICO
TITLE OF INVENTION: BFG MUTIN AND ITS PRODUCTION
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS
STREET: 130 WATER STREET
CITY: BOSTON
STATE: MASSACHUSETTS
COUNTRY: US
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: PastSeq Version 1.5
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/231,894A
FILING DATE: 22-APR-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/873907
FILING DATE: 24-APR-1992
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 097655-1991
FILING DATE: 26-APR-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 066381-1992
FILING DATE: 24-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: RESNICK, DAVID S.
REGISTRATION NUMBER: 34235
REFERENCE/DOCKET NUMBER: 41769-FWC
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 523-3400
TELEFAX: (617) 523-6440
INFORMATION FOR SEQ ID NO: 15:
SEQUENCE CHARACTERISTICS:
LENGTH: 146 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: internal
ORIGINAL SOURCE:
US-08-231-894A-15

```

```

Query Match          100.0%; Score 239; DB 2; Length 146;
Best Local Similarity 100.0%; Pred. No. 1.9e-27;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

```

QY 1 YCKNGGFFLRHDPGRVDSREKSDPHIKLOQAERGVVSIKGV 45
DB 24 YCKNGGFFLRHDPGRVDSREKSDPHIKLOQAERGVVSIKGV 68

```

```

RESULT 14
US-09-105-678A-49
Sequence 49, Application US/09105678A
Patent No. 6103882
GENERAL INFORMATION:
APPLICANT: Suenaga, Masato
APPLICANT: Moriya, Takeo
APPLICANT: Tanaka, Yoko
APPLICANT: Nishimura, Osamu
TITLE OF INVENTION: METHOD OF PRODUCING A 19P2 LIGAND
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
ADDRESSEE: DIKE, BRONSTEIN, ROBERTS & CUSHMAN, LLP
STREET: 130 Water Street

```

```

CITY: Boston
STATE: MA
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/105,678A
FILING DATE: 26-JUN-1998
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 172118/1997
FILING DATE: 27-JUN-1997
ATTORNEY/AGENT INFORMATION:
NAME: Conlin, David G.
REGISTRATION NUMBER: 27,026
REFERENCE/DOCKET NUMBER: 48466-342
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617-523-3400
TELEFAX: 617-523-6440
INFORMATION FOR SEQ ID NO: 49:
SEQUENCE CHARACTERISTICS:
LENGTH: 146 amino acids
TYPE: amino acid
STRANDEDNESS:
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-09-105-678A-49

```

```

Query Match          100.0%; Score 239; DB 3; Length 146;
Best Local Similarity 100.0%; Pred. No. 1.9e-27;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

```

QY 1 YCKNGGFFLRHDPGRVDSREKSDPHIKLOQAERGVVSIKGV 45
DB 24 YCKNGGFFLRHDPGRVDSREKSDPHIKLOQAERGVVSIKGV 68

```

```

RESULT 15
US-09-421-208-49
Sequence 49, Application US/09421208
Patent No. 6258561
GENERAL INFORMATION:
APPLICANT: Suenaga, Masato
APPLICANT: Moriya, Takeo
APPLICANT: Tanaka, Yoko
APPLICANT: Nishimura, Osamu
TITLE OF INVENTION: METHOD OF PRODUCING A 19P2 LIGAND
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
ADDRESSEE: DIKE, BRONSTEIN, ROBERTS & CUSHMAN, LLP
STREET: 130 Water Street
CITY: Boston
STATE: MA
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/421,208
FILING DATE:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 09/105,678
FILING DATE: 26-JUN-1998
APPLICATION NUMBER: JP 172118/1997
FILING DATE: 27-JUN-1997
ATTORNEY/AGENT INFORMATION:
NAME: Conlin, David G.

```

REGISTRATION NUMBER: 27, 026  
REFERENCE/DOCKET NUMBER: 48466-342  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 617-523-3400  
TELEFAX: 617-523-6440  
INFORMATION FOR SEQ ID NO: 49:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 146 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
US-09-421-208-49

Query Match 100.0%; Score 239; DB 3; Length 146;  
Best Local Similarity 100.0%; Pred. No. 1.9e-27;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 YCKNGGFPLRIHPDGRVDGVREKSDPHIKLQLQAEERGVSIGV 45  
DB 24 YCKNGGFPLRIHPDGRVDGVREKSDPHIKLQLQAEERGVSIGV 68

Search completed: January 30, 2004, 11:47:50  
Job time : 20.1538 secs

GenCore version 5.1.6  
Copyright (c) 1993 - 2004 Compugen Ltd.

OM protein - protein search, using sw model

Run on: January 30, 2004, 11:44:49 ; Search time 44.5365 Seconds  
(without alignments)  
209.978 Million cell updates/sec

Title: US-09-266-543-1

Perfect score: 239  
Sequence: 1 YCKNGGFPLRHPDGRVDGV.....PHIKQLQAEERGVSTKGV 45

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 789580 seqs, 207824079 residues

Total number of hits satisfying chosen parameters: 789580

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database : Published Applications AA.\*

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11: /cgn2_6/ptodata/2/pubpaa/US09C_PUBCOMB.pep.*
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18: /cgn2_6/ptodata/2/pubpaa/US60_PUBCOMB.pep.*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

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2	239	100.0	134	12	US-10-379-334-24
3	239	100.0	145	11	US-09-940-601-3
4	239	100.0	146	9	US-09-802-365-2
5	239	100.0	146	9	US-09-802-365-4
6	239	100.0	146	9	US-09-771-302-2
7	239	100.0	146	10	US-09-886-856-2
8	239	100.0	146	10	US-09-886-856-4
9	239	100.0	146	12	US-10-184-708-2
10	239	100.0	146	12	US-10-395-541-2
11	239	100.0	146	12	US-10-395-541-6
12	239	100.0	146	14	US-10-131-965-6
13	239	100.0	146	14	US-10-131-965-5
14	239	100.0	146	15	US-10-108-195-2
15	239	100.0	146	15	US-10-108-195-3

16	239	100.0	146	15	US-10-108-195-4	Sequence 4, Appl1
17	239	100.0	146	15	US-10-108-195-7	Sequence 7, Appl1
18	239	100.0	146	15	US-10-168-050-3	Sequence 3, Appl1
19	239	100.0	146	15	US-10-108-841B-1	Sequence 1, Appl1
20	239	100.0	147	11	US-09-820-596-8	Sequence 8, Appl1
21	239	100.0	150	13	US-10-016-447-8	Sequence 8, Appl1
22	239	100.0	154	12	US-10-192-988-24	Sequence 24, Appl1
23	239	100.0	155	9	US-09-822-485-5	Sequence 5, Appl1
24	239	100.0	155	9	US-09-802-365-6	Sequence 6, Appl1
25	239	100.0	155	9	US-09-802-365-8	Sequence 8, Appl1
26	239	100.0	155	9	US-09-251-263-10	Sequence 10, Appl1
27	239	100.0	155	9	US-09-425-021-10	Sequence 10, Appl1
28	239	100.0	155	10	US-09-886-856-6	Sequence 6, Appl1
29	239	100.0	155	10	US-09-886-856-8	Sequence 8, Appl1
30	239	100.0	155	10	US-09-749-728B-7	Sequence 7, Appl1
31	239	100.0	155	11	US-09-902-460-2	Sequence 2, Appl1
32	239	100.0	155	11	US-09-345-373-17	Sequence 17, Appl1
33	239	100.0	155	11	US-09-775-964-3	Sequence 3, Appl1
34	239	100.0	155	12	US-10-189-360-11	Sequence 11, Appl1
35	239	100.0	155	12	US-10-192-988-14	Sequence 14, Appl1
36	239	100.0	155	12	US-10-374-207-5	Sequence 5, Appl1
37	239	100.0	155	12	US-10-395-541-5	Sequence 5, Appl1
38	239	100.0	155	12	US-10-035-212-17	Sequence 17, Appl1
39	239	100.0	155	12	US-10-123-481-4	Sequence 4, Appl1
40	239	100.0	155	12	US-10-131-985-5	Sequence 5, Appl1
41	239	100.0	155	12	US-10-315-431-28	Sequence 28, Appl1
42	239	100.0	155	12	US-10-347-177-9	Sequence 9, Appl1
43	239	100.0	155	15	US-10-081-347-28	Sequence 28, Appl1
44	239	100.0	155	15	US-10-108-195-1	Sequence 1, Appl1
45	239	100.0	155	16	US-10-075-446-17	Sequence 17, Appl1

## ALIGNMENTS

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RESULT 1
US-09-901-938-24
; Sequence 24, Application US/09901938
; Patent No. US20020156001A1
; GENERAL INFORMATION:
; APPLICANT: ECONS, Michael
; APPLICANT: WHITE, Kenneth
; APPLICANT: STROM, Tim
; APPLICANT: MEITINGER, Thomas
; TITLE OF INVENTION: NOVEL FIBROBLAST GROWTH FACTOR (RGF23) AND METHODS FOR USE
; FILE REFERENCE: 053884-5001
; CURRENT APPLICATION NUMBER: US/09/901,938
; CURRENT FILING DATE: 2001-07-10
; PRIOR APPLICATION NUMBER: 60/219,137
; PRIOR FILING DATE: 2000-07-19
; NUMBER OF SEQ ID NOS: 34
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 24
; LENGTH: 134
; TYPE: PRT
; ORGANISM: Homo Sapiens
US-09-901-938-24

Query Match      100.0%; Score 239; DB 10; Length 134;
Best Local Similarity 100.0%; Pred. No. 2.8e-24;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY      1 YCKNGGFPLRHPDGRVDGRKSPHTQLQAEERGVSTKGV 45
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DB      12 YCKNGGFPLRHPDGRVDGRKSPHTQLQAEERGVSTKGV 56

RESULT 2
US-10-379-334-24
; Sequence 24, Application US/10379334
; Publication No. US20030181379A1
; GENERAL INFORMATION:
; APPLICANT: ECONS, Michael
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; APPLICANT: WHITE, Kenneth
; APPLICANT: STROM, Tim
; APPLICANT: MEINER, Thomas
; TITLE OF INVENTION: NOVEL FIBROBLAST GROWTH FACTOR (FGF23) AND METHODS FOR USE
; FILE REFERENCE: 053884-5001
; CURRENT APPLICATION NUMBER: US/10/379,334
; CURRENT FILING DATE: 2003-03-04
; PRIOR APPLICATION NUMBER: US/09/901,938
; PRIOR FILING DATE: 2001-07-10
; PRIOR APPLICATION NUMBER: 60/219,137
; PRIOR FILING DATE: 2000-07-19
; NUMBER OF SEQ ID NOS: 34
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 24
; LENGTH: 134
; TYPE: PRT
; ORGANISM: Homo Sapiens
US-10-379-334-24
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Query Match          100.0%; Score 239; DB 12; Length 134;
Best Local Similarity 100.0%; Pred. No. 2.8e-24;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
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Qy 1 YCKNGFFLRHPDGRVDGVREKSDPHIKLQLQAERGVVISIKGV 45
Db 12 YCKNGFFLRHPDGRVDGVREKSDPHIKLQLQAERGVVISIKGV 56
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RESULT 3
US-09-940-601-3
; Sequence 3, Application US/09940601
; Publication No. US20030004319A1
; GENERAL INFORMATION:
; APPLICANT: Basilio, Claudio
; APPLICANT: Dellì Bovì, Pasquale
; TITLE OF INVENTION: MAMMALIAN GROWTH FACTOR
; FILE REFERENCE: 5986/13586-USC
; CURRENT APPLICATION NUMBER: US/09/940,601
; CURRENT FILING DATE: 2001-08-27
; PRIOR APPLICATION NUMBER: 08/775,567
; PRIOR FILING DATE: 1996-12-31
; PRIOR APPLICATION NUMBER: 08/056,482
; PRIOR FILING DATE: 1993-05-03
; PRIOR APPLICATION NUMBER: 07/806,771
; PRIOR FILING DATE: 1991-12-06
; PRIOR APPLICATION NUMBER: 07/177,506
; PRIOR FILING DATE: 1988-04-04
; PRIOR APPLICATION NUMBER: 07/062,925
; PRIOR FILING DATE: 1987-06-16
; NUMBER OF SEQ ID NOS: 8
; SOFTWARE: FastSeq for Windows Version 3.0
; SEQ ID NO 3
; LENGTH: 145
; TYPE: PRT
; ORGANISM: Bos taurus
US-09-940-601-3
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Query Match          100.0%; Score 239; DB 11; Length 145;
Best Local Similarity 100.0%; Pred. No. 3e-24;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
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Db 24 YCKNGFFLRHPDGRVDGVREKSDPHIKLQLQAERGVVISIKGV 68
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RESULT 4
US-09-802-365-2
; Sequence 2, Application US/09802365
; Patent No. US20020032153A1
; GENERAL INFORMATION:
; APPLICANT: Whitehouse, Martha Jo
; TITLE OF INVENTION: Methods and Compositions for the
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; TITLE OF INVENTION: Treatment and Prevention of Erectile Dysfunction
; FILE REFERENCE: 1671,003
; CURRENT APPLICATION NUMBER: US/09/802,365
; CURRENT FILING DATE: 2001-03-09
; PRIOR APPLICATION NUMBER: 60/188,480
; PRIOR FILING DATE: 2000-03-10
; PRIOR APPLICATION NUMBER: 60/203,415
; PRIOR FILING DATE: 2000-05-11
; NUMBER OF SEQ ID NOS: 9
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 2
; LENGTH: 146
; TYPE: PRT
; ORGANISM: Bos taurus
US-09-802-365-2
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Query Match          100.0%; Score 239; DB 9; Length 146;
Best Local Similarity 100.0%; Pred. No. 3.1e-24;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
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RESULT 5
US-09-802-365-4
; Sequence 4, Application US/09802365
; Patent No. US20020032153A1
; GENERAL INFORMATION:
; APPLICANT: Whitehouse, Martha Jo
; TITLE OF INVENTION: Methods and Compositions for the
; FILE REFERENCE: 1671,003
; CURRENT APPLICATION NUMBER: US/09/802,365
; CURRENT FILING DATE: 2001-03-09
; PRIOR APPLICATION NUMBER: 60/188,480
; PRIOR FILING DATE: 2000-03-10
; PRIOR APPLICATION NUMBER: 60/203,415
; PRIOR FILING DATE: 2000-05-11
; NUMBER OF SEQ ID NOS: 9
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 4
; LENGTH: 146
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-802-365-4
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Query Match          100.0%; Score 239; DB 9; Length 146;
Best Local Similarity 100.0%; Pred. No. 3.1e-24;
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RESULT 6
US-09-771-302-2
; Sequence 2, Application US/09771302
; Patent No. US20020072489A1
; GENERAL INFORMATION:
; APPLICANT: Whitehouse, Martha J.
; TITLE OF INVENTION: Angiogenically Effective Unit Dose of FGF-2 and Method
; FILE REFERENCE: 1296/12169US04
; CURRENT APPLICATION NUMBER: US/09/771,302
; CURRENT FILING DATE: 2001-01-26
; PRIOR APPLICATION NUMBER: 09/385,114
; PRIOR FILING DATE: 1999-08-27
; PRIOR APPLICATION NUMBER: 60/104,102
; PRIOR FILING DATE: 1998-10-13
; NUMBER OF SEQ ID NOS: 3
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SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 2  
LENGTH: 146  
TYPE: PRT  
ORGANISM: Bovis bovinus  
US-09-771-302-2

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Best Local Similarity 100.0%; Pred. No. 3.1e-24;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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DB 24 YCKNGFFLRHHPDGRVDGVREKSDPHIKLQLQAEERGVSIKGV 68

RESULT 7  
US-09-886-856-2  
Sequence 2, Application US/09886856  
Patent No. US20020115603A1  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha Jo  
TITLE OF INVENTION: Methods and Compositions for the  
FILE REFERENCE: P16090.004  
CURRENT APPLICATION NUMBER: US/09/886,856  
PRIOR FILING DATE: 2001-06-21  
PRIOR APPLICATION NUMBER: 60/213,504  
PRIOR FILING DATE: 2000-06-22  
PRIOR APPLICATION NUMBER: 60/264,572  
PRIOR FILING DATE: 2000-01-26  
PRIOR APPLICATION NUMBER: 60/276,549  
PRIOR FILING DATE: 2001-03-16  
NUMBER OF SEQ ID NOS: 9  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 2  
LENGTH: 146  
TYPE: PRT  
ORGANISM: Bos taurus  
US-09-886-856-2

Query Match 100.0%; Score 239; DB 10; Length 146;  
Best Local Similarity 100.0%; Pred. No. 3.1e-24;  
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DB 24 YCKNGFFLRHHPDGRVDGVREKSDPHIKLQLQAEERGVSIKGV 68

RESULT 8  
US-09-886-856-4  
Sequence 4, Application US/09886856  
Patent No. US20020115603A1  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha Jo  
TITLE OF INVENTION: Methods and Compositions for the  
FILE REFERENCE: P16090.004  
CURRENT APPLICATION NUMBER: US/09/886,856  
PRIOR FILING DATE: 2001-06-21  
PRIOR APPLICATION NUMBER: 60/213,504  
PRIOR FILING DATE: 2000-06-22  
PRIOR APPLICATION NUMBER: 60/264,572  
PRIOR FILING DATE: 2000-01-26  
PRIOR APPLICATION NUMBER: 60/276,549  
PRIOR FILING DATE: 2001-03-16  
NUMBER OF SEQ ID NOS: 9  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 4  
LENGTH: 146  
TYPE: PRT  
ORGANISM: Homo sapiens

US-09-886-856-4

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Best Local Similarity 100.0%; Pred. No. 3.1e-24;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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DB 24 YCKNGFFLRHHPDGRVDGVREKSDPHIKLQLQAEERGVSIKGV 68

RESULT 9  
US-10-184-708-2  
Sequence 2, Application US/10184708  
Publication No. US20030166550A1  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha J.  
TITLE OF INVENTION: Angiogenically Effective Unit Dose of FGF-2 and Method  
FILE REFERENCE: 1296/12169US04  
CURRENT APPLICATION NUMBER: US/10/184,708  
PRIOR FILING DATE: 2002-06-28  
PRIOR APPLICATION NUMBER: US/09/385,114  
PRIOR FILING DATE: 1999-08-27  
PRIOR APPLICATION NUMBER: 60/104,103  
PRIOR FILING DATE: 1998-10-13  
PRIOR APPLICATION NUMBER: 60/104,102  
PRIOR FILING DATE: 1998-10-13  
NUMBER OF SEQ ID NOS: 3  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 2  
LENGTH: 146  
TYPE: PRT  
ORGANISM: Bovis bovinus  
US-10-184-708-2

Query Match 100.0%; Score 239; DB 12; Length 146;  
Best Local Similarity 100.0%; Pred. No. 3.1e-24;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHHPDGRVDGVREKSDPHIKLQLQAEERGVSIKGV 45  
DB 24 YCKNGFFLRHHPDGRVDGVREKSDPHIKLQLQAEERGVSIKGV 68

RESULT 10  
US-10-395-541-2  
Sequence 2, Application US/10395541  
Publication No. US20030171294A1  
GENERAL INFORMATION:  
APPLICANT: Hung, David  
APPLICANT: Annex, Brian  
APPLICANT: Kavanaugh, W.  
APPLICANT: Landolfo, Kevin  
TITLE OF INVENTION: DOSE OF ANGIOGENIC FACTOR AND METHOD OF ADMINISTERING TO IMPROVE  
FILE REFERENCE: 1606.002/12443US02  
CURRENT APPLICATION NUMBER: US/10/395,541  
PRIOR FILING DATE: 2003-03-24  
PRIOR APPLICATION NUMBER: US/09/637,471  
PRIOR FILING DATE: 2000-08-11  
NUMBER OF SEQ ID NOS: 6  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 2  
LENGTH: 146  
TYPE: PRT  
ORGANISM: CDNA BOVINE FGF-2  
US-10-395-541-2

Query Match 100.0%; Score 239; DB 12; Length 146;  
Best Local Similarity 100.0%; Pred. No. 3.1e-24;  
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 DB 24 YKNGGFRLRHPDGRVGVREKSPHKLQLOAERGVSIGV 68

RESULT 11  
 US-10-395-541-6  
 ; Sequence 6, Application US/10395541  
 ; Publication No. US20030171294A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: David  
 ; APPLICANT: Hung, David  
 ; APPLICANT: Annex, Brian  
 ; APPLICANT: Landolfo, Kevin  
 ; APPLICANT: Kavanaugh, W.  
 ; TITLE OF INVENTION: DOSE OF ANGIOGENIC FACTOR AND METHOD OF ADMINISTERING TO IMPROVE  
 ; TITLE OF INVENTION: MYOCARDIAL BLOOD FLOW  
 ; FILE REFERENCE: 1606.002/12443US02  
 ; CURRENT APPLICATION NUMBER: US/10/395,541  
 ; CURRENT FILING DATE: 2003-03-24  
 ; PRIOR APPLICATION NUMBER: US/09/637,471  
 ; PRIOR FILING DATE: 2000-08-11  
 ; NUMBER OF SEQ ID NOS: 6  
 ; SOFTWARE: PatentIn version 3.0  
 ; SEQ ID NO 6  
 ; LENGTH: 146  
 ; TYPE: PRT  
 ; ORGANISM: Mature Human FGF-2  
 US-10-395-541-6

Query Match 100.0%; Score 239; DB 12; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 3.1e-24;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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 DB 24 YKNGGFRLRHPDGRVGVREKSPHKLQLOAERGVSIGV 68

RESULT 12  
 US-10-131-965-3  
 ; Sequence 3, Application US/10131965  
 ; Publication No. US20020165160A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Whitehouse, Martha J.  
 ; APPLICANT: Kavanaugh, Michael W.  
 ; TITLE OF INVENTION: Angiogenically Effective Unit Dose of FGF and Method of  
 ; TITLE OF INVENTION: Administering  
 ; FILE REFERENCE: 1296/12169US05  
 ; CURRENT APPLICATION NUMBER: US/10/131,965  
 ; CURRENT FILING DATE: 2002-04-25  
 ; PRIOR APPLICATION NUMBER: US/09/417,721  
 ; PRIOR FILING DATE: 1999-10-13  
 ; PRIOR APPLICATION NUMBER: 60/104,103  
 ; PRIOR FILING DATE: 1998-10-13  
 ; NUMBER OF SEQ ID NOS: 15  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 3  
 ; LENGTH: 146  
 ; TYPE: PRT  
 ; ORGANISM: Human FGF-2  
 US-10-131-965-3

Query Match 100.0%; Score 239; DB 14; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 3.1e-24;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YKNGGFRLRHPDGRVGVREKSPHKLQLOAERGVSIGV 45  
 DB 24 YKNGGFRLRHPDGRVGVREKSPHKLQLOAERGVSIGV 68

RESULT 13  
 US-10-131-965-5

; Sequence 5, Application US/10131965  
 ; Publication No. US20020165160A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Whitehouse, Martha J.  
 ; APPLICANT: Kavanaugh, Michael W.  
 ; TITLE OF INVENTION: Angiogenically Effective Unit Dose of FGF and Method of  
 ; TITLE OF INVENTION: Administering  
 ; FILE REFERENCE: 1296/12169US05  
 ; CURRENT APPLICATION NUMBER: US/10/131,965  
 ; CURRENT FILING DATE: 2002-04-25  
 ; PRIOR APPLICATION NUMBER: US/09/417,721  
 ; PRIOR FILING DATE: 1999-10-13  
 ; PRIOR APPLICATION NUMBER: 60/104,103  
 ; PRIOR FILING DATE: 1998-10-13  
 ; NUMBER OF SEQ ID NOS: 15  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 5  
 ; LENGTH: 146  
 ; TYPE: PRT  
 ; ORGANISM: Bovine FGF-2  
 US-10-131-965-5

Query Match 100.0%; Score 239; DB 14; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 3.1e-24;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YKNGGFRLRHPDGRVGVREKSPHKLQLOAERGVSIGV 45  
 DB 24 YKNGGFRLRHPDGRVGVREKSPHKLQLOAERGVSIGV 68

RESULT 14  
 US-10-108-195-2  
 ; Sequence 2, Application US/10108195  
 ; Publication No. US20030008620A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Kwan, Chi-Pong  
 ; APPLICANT: Venkataraman, Ganesh  
 ; APPLICANT: Shrivier, Zachary  
 ; APPLICANT: Raman, Rahul  
 ; APPLICANT: Saasisekharan, Ram  
 ; TITLE OF INVENTION: Methods and Products Related to FGF Dimerization  
 ; FILE REFERENCE: M00656/70076  
 ; CURRENT APPLICATION NUMBER: US/10/108,195  
 ; CURRENT FILING DATE: 2002-03-27  
 ; PRIOR APPLICATION NUMBER: US 60/279,165  
 ; PRIOR FILING DATE: 2001-03-27  
 ; NUMBER OF SEQ ID NOS: 15  
 ; SOFTWARE: PatentIn version 3.1  
 ; SEQ ID NO 2  
 ; LENGTH: 146  
 ; TYPE: PRT  
 ; ORGANISM: Artificial Sequence  
 ; FEATURE:  
 ; OTHER INFORMATION: Mutant of Native FGF2 with 9 N-terminal Residues Deleted  
 US-10-108-195-2

Query Match 100.0%; Score 239; DB 15; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 3.1e-24;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YKNGGFRLRHPDGRVGVREKSPHKLQLOAERGVSIGV 45  
 DB 24 YKNGGFRLRHPDGRVGVREKSPHKLQLOAERGVSIGV 68

RESULT 15  
 US-10-108-195-3  
 ; Sequence 3, Application US/10108195  
 ; Publication No. US20030008620A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Kwan, Chi-Pong  
 ; APPLICANT: Venkataraman, Ganesh

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; APPLICANT: Shriver, Zachary
; APPLICANT: Raman, Rahul
; APPLICANT: Sasisekharan, Ram
; TITLE OF INVENTION: Methods and Products Related to FGF Dimerization
; FILE REFERENCE: M00656/70076
; CURRENT APPLICATION NUMBER: US/10/108,195
; CURRENT FILING DATE: 2002-03-27
; PRIOR APPLICATION NUMBER: US 60/279,165
; PRIOR FILING DATE: 2001-03-27
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 146
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Mutant of Native FGF2 with 9 N-terminal Residues Deleted
US-10-108-195-3

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Query Match      100.0%; Score 239; DB 15; Length 146;
Best Local Similarity 100.0%; Pred. No. 3,1e-24;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy      1 YCKNGGFLLRIHPDGRVDGVRKSDPHIKLQQAERGVSISIKGV 45
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Db      24 YCKNGGFLLRIHPDGRVDGVRKSDPHIKLQQAERGVSISIKGV 68

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Search completed: January 30, 2004, 12:15:00  
Job time : 44.6635 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:34:23 ; Search time 19.3846 Seconds  
(without alignments)  
223.249 Million cell updates/sec

Title: US-09-266-543-1

Perfect score: 239

Sequence: 1 YCKNGFFLRHHPDGRVDGV.....PHIKLQAEERGVSIXGV 45

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283308 seqs, 96168682 residues

Total number of hits satisfying chosen parameters: 283308

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :  
1: pir76:\*  
2: pir1:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	239	100.0	137	2 I46711	fibroblast growth
2	239	100.0	146	1 S00185	basic fibroblast g
3	239	100.0	157	1 GKB0B	basic fibroblast g
4	239	100.0	210	2 A32398	basic fibroblast g
5	238	99.6	154	2 A31674	basic fibroblast g
6	238	99.6	154	2 C37360	basic fibroblast g
7	232	97.1	189	2 A48834	basic fibroblast g
8	231	96.7	164	2 S31622	basic fibroblast g
9	199	83.3	155	1 A40117	basic fibroblast g
10	156	65.3	155	1 A60721	acidic fibroblast
11	156	65.3	155	2 S04147	acidic fibroblast
12	156	65.3	155	2 D37360	acidic fibroblast
13	154	64.4	155	2 JMO055	acidic fibroblast
14	153	64.0	155	2 A60130	acidic fibroblast
15	148	61.9	152	2 JH0476	acidic fibroblast
16	148	61.9	155	1 A33665	acidic fibroblast
17	146	61.1	155	1 GKB0A	acidic fibroblast
18	109	45.6	60	2 JH0708	fibroblast growth
19	103	43.1	208	2 S14192	fibroblast growth
20	102	42.7	208	2 S20102	fibroblast growth
21	96	40.2	194	2 I50710	fibroblast growth
22	94.5	39.5	256	2 JCA427	fibroblast growth
23	94	39.3	206	2 JCA4268	fibroblast growth
24	94	39.3	264	2 A36207	fibroblast growth
25	94	39.3	266	2 S68144	fibroblast growth
26	90	37.7	202	1 TWM5HS	fibroblast growth
27	90	37.7	267	1 TVH0FS	fibroblast growth
28	85	35.6	206	1 TVH0HS	fibroblast growth
29	84.5	35.4	220	2 I50588	fibroblast growth

30	83	34.7	245	1 TWM5T2	transforming prote
31	82	34.3	168	2 JG0184	fibroblast growth
32	82	34.3	187	2 S23595	embryonic fibrobla
33	79	33.1	192	2 S54407	embryonic fibrobla
34	79	33.1	239	1 S04742	fibroblast growth
35	77.5	32.4	208	2 UC7082	fibroblast somatoc
36	76.5	32.0	211	1 S39582	transforming prote
37	75.5	31.6	212	2 JC7353	fibroblast growth
38	75.5	31.6	212	2 JC7511	fibroblast growth
39	70.5	29.5	121	2 S68145	fibroblast growth
40	69.5	29.1	208	2 S66486	fibroblast growth
41	69.5	29.1	208	2 A48137	fibroblast growth
42	67.5	28.2	207	2 JC5940	fibroblast growth
43	67.5	28.2	207	2 JC5941	fibroblast growth
44	66.5	27.8	194	2 I48610	keratinocyte growt
45	65.5	27.4	194	1 A36301	fibroblast growth

## ALIGNMENTS

RESULT 1  
146711  
fibroblast growth factor - rabbit (fragment)  
C/Species: Oryctolagus cuniculus (domestic rabbit)  
C/Date: 14-Feb-1997 #sequence\_revision 14-Feb-1997 #text\_change 16-Jul-1999  
C/Accession: 146711  
R/Winkler, J.A.; Friesel, R.; Alberts, G.F.; Janat, M.F.; Lian, G.  
Am. J. Pathol. 143, 518-527, 1993  
A/Title: Elevated expression of basic fibroblast growth factor in an immortalized rabbit  
A/Reference number: 146711; MUID:93343209; PMID:8342599  
A/Accession: 146711  
A/Status: preliminary; translated from GB/EMBL/DBJ  
A/Molecule type: mRNA  
A/Residues: 1-137 <MIN>  
A/Cross-references: GB:L12034; NID:9165014; PIDN:AAA31248.1; PID:9165015  
C/Suprafamily: fibroblast growth factor

Query Match  
Best Local Similarity 100.0%; Score 239; DB 2; Length 137;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHHPDGRVDGVREKSPHIKLOAEERGVSIXGV 45  
DB 24 YCKNGFFLRHHPDGRVDGVREKSPHIKLOAEERGVSIXGV 68

RESULT 2  
S00185  
basic fibroblast growth factor - sheep  
N/Alternate names: prostatorpin  
C/Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C/Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999  
C/Accession: S00185  
R/Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabrit, L.J.; Nice, E.C.; Rubira, M.R.; Burge  
FEBS Lett. 224, 128-132, 1987  
A/Title: Primary structure of ovine pituitary basic fibroblast growth factor.  
A/Reference number: S00185; MUID:88035377; PMID:3678486  
A/Accession: S00185  
A/Molecule type: protein  
A/Residues: 1-146 <SIM>  
C/Suprafamily: fibroblast growth factor  
C/Keywords: growth factor; heparin binding; mitogen  
F118-22/Region: heparin binding #status predicted  
F1107-110/Region: heparin binding #status predicted

Query Match  
Best Local Similarity 100.0%; Score 239; DB 1; Length 146;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHHPDGRVDGVREKSPHIKLOAEERGVSIXGV 45  
DB 24 YCKNGFFLRHHPDGRVDGVREKSPHIKLOAEERGVSIXGV 68

## RESULT 3

GRB08  
basic fibroblast growth factor precursor - bovine (fragment)  
N/Alternate names: bFGF; kidney-derived growth factor; proheparin  
C/Species: Bos primigenius taurus (cattle)  
C/Date: 13-Aug-1986 #sequence revision 02-Jun-1995 #text change 24-Nov-1999  
A/Accession: A24663; A32878; A33784; A61550; A60310; A61094; A01386; A60316; A22  
R/Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumbolo, A.; Friedman, J.; Hjerrild, K.A.; Gosp  
Science 233, 545-548, 1986  
A/Title: Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fi  
A/Reference number: A24290; MUID:86261806; PMID:2425435  
A/Accession: A24663  
A/Molecule type: mRNA  
A/Residues: 3-157 <ABR>  
A/Cross-references: GB:M13440; NID:G163049; PIDN:AAA0518.1; PID:G163050  
A/Experimental source: pituitary gland  
R/Abraham, J.A.; Whang, J.L.; Tumbolo, A.; Mergia, A.; Fiddes, J.C.  
Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986  
A/Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organization  
A/Reference number: A80924; MUID:87217066; PMID:3472745  
A/Accession: A32878  
A/Molecule type: mRNA  
A/Residues: 3-157 <AB2>  
R/Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.  
Biochem. Biophys. Res. Commun. 165, 1096-1103, 1989  
A/Title: A novel 17 kd heparin-binding growth factor (HBGF-8) in bovine uterus: purifica  
A/Reference number: A33784; MUID:90121211; PMID:2610682  
A/Accession: A33784  
A/Molecule type: protein  
A/Residues: 1-14 <ML>  
A/Note: demonstration of a possible alternative initiator or splice junction  
R/Bertolini, J.; Hearn, M.T.W.  
Mol. Cell. Endocrinol. 51, 187-199, 1987  
A/Title: Isolation, characterization and tissue localization of an N-terminal-truncated  
A/Reference number: A61550; MUID:87247652; PMID:3596000  
A/Accession: A61550  
A/Molecule type: protein  
A/Residues: 16-35 <BER>  
R/Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.  
Mol. Cell. Endocrinol. 49, 189-194, 1987  
A/Title: Isolation and partial characterization of basic fibroblast growth factor from h  
A/Reference number: A61551; MUID:87162856; PMID:3556754  
A/Accession: A61551  
A/Molecule type: protein  
A/Residues: 27-35, 'X', 37-41 <UB3>  
A/Experimental source: testes  
A/Note: this form appears to be identical to the renal form  
R/Ueno, N.; Baird, A.; Esch, F.; Shimazaki, S.; Ling, N.; Guillemin, R.  
Regul. Pept. 16, 135-145, 1986  
A/Title: Purification and partial characterization of a mitogenic factor from bovine liv  
A/Reference number: A60310; MUID:87119165; PMID:3809608  
A/Accession: A60310  
A/Molecule type: protein  
A/Residues: 23-35, 'X', 37-42 <UEN>  
A/Experimental source: liver  
R/Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.  
Biochem. Biophys. Res. Commun. 138, 580-588, 1986  
A/Title: Isolation of an amino terminal extended form of basic fibroblast growth factor.  
A/Reference number: A24819; MUID:86295737; PMID:3741423  
A/Contents: annotation  
A/Note: the amino end of this form was blocked; the peptide composition matched what was  
R/Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.; Bohlen, P.  
Endocrinology 118, 82-90, 1986  
A/Title: Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical  
A/Reference number: A61094; MUID:86081530; PMID:3940857  
A/Accession: A61094  
A/Molecule type: protein  
A/Residues: 12-25, 27-35, 'X', 37-40 <GOS>  
A/Experimental source: adrenal gland  
R/Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarow  
Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985

A/Title: Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and  
A/Reference number: A01386; MUID:86016731; PMID:3863109  
A/Accession: A01386  
A/Molecule type: protein  
A/Residues: 12-157 <BSC>  
A/Experimental source: pituitary gland  
R/Baird, A.; Esch, F.; Bohlen, P.; Ling, N.; Gospodarowicz, D.  
Regul. Pept. 12, 201-213, 1985  
A/Title: Isolation and partial characterization of an endothelial cell growth factor fro  
A/Reference number: A60316; MUID:86095426; PMID:4081126  
A/Accession: A60316  
A/Molecule type: protein  
A/Residues: 27-35, 'X', 37-43 <BAI>  
A/Experimental source: kidney  
R/Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.  
Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984  
A/Title: Isolation and partial molecular characterization of pituitary fibroblast growth  
A/Reference number: A22054; MUID:84298139; PMID:6591194  
A/Accession: A22054  
A/Molecule type: protein  
A/Residues: 12-26 <BOH>  
A/Comment: The acidic and basic fibroblast growth factors are the major endothelial-cell  
cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating c  
C/Comment: This protein binds heparin more strongly than does aFGF.  
C/Superfamily: fibroblast growth factor  
C/Keywords: alternative splicing; angiogenesis; blocked amino end; growth factor; hepari  
F.1-157/Product: basic fibroblast growth factor; uerine form #status predicted <MAT>  
F.4-157/Product: basic fibroblast growth factor; pituitary gamma form #status experiment  
F.12-157/Product: basic fibroblast growth factor; pituitary alpha form #status experimen  
F.16-157/Product: basic fibroblast growth factor; pituitary short form #status predicted  
F.23-157/Product: basic fibroblast growth factor; hepatic form #status experimental <MAT  
F.27-157/Product: basic fibroblast growth factor; renal form #status experimental <MAT6>  
F.29-33, 118-121/Region: heparin binding #status predicted  
F.4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma) (probably ac

Query Match 100.0%; Score 239; DB 1; Length 157;  
Best local similarity 100.0%; Pred. No. 3.2e-24;  
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGGFLRTHPDGRVDGVRKSDPHIKIQLQAEERGVSIKGV 45  
DB 35 YCKNGGFLRTHPDGRVDGVRKSDPHIKIQLQAEERGVSIKGV 79

RESULT 4  
A22398  
basic fibroblast growth factor precursor, 22.5K form - human  
N/Alternate names: bFGF; fibroblast growth factor 2; prostatic growth factor; prostaticro  
N/Contents: basic fibroblast growth factor, 18K form  
C/Species: Homo sapiens (man)  
C/Date: 31-Jul-1989 #sequence revision 31-Dec-1993 #text change 21-Jul-2000  
A/Accession: A22398; A61537; A26642; B32678; S00297; A54316; B54316; A33624; A25824; B24  
R/Petrie, H.; Kaghaz, M.; Plets, A.C.; Klagsbrun, M.; Lelias, J.M.; Lianum, P.; Chalon, P.  
Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989  
A/Title: High molecular mass forms of basic fibroblast growth factor are initiated by ad  
A/Reference number: A32398; MUID:89184522; PMID:2538817  
A/Accession: A32398  
A/Molecule type: mRNA  
A/Residues: 1-210 <PR>  
A/Cross-references: GB:J04513; NID:G183083; PIDN:AAA52531.1; PID:G459811  
R/Shibata, F.; Baird, A.; Flokiewicz, R.Z.  
Growth Factors 4, 277-287, 1991  
A/Title: Functional characterization of the human basic fibroblast growth factor gene pr  
A/Reference number: A61537; MUID:92110035; PMID:1764264  
A/Accession: A61537  
A/Molecule type: DNA  
A/Residues: 1-114 <SH>  
A/Note: authors translated the codon GGA for residue 47 as Ala  
R/Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.  
FEBS Lett. 213, 189-194, 1987  
A/Title: Cloning and expression of cDNA encoding human basic fibroblast growth factor.  
A/Reference number: A26642; MUID:87162468; PMID:2435575  
A/Accession: A26642

A.Molecule type: mRNA  
 A.Residues: 56-210 <KUR>  
 A.Cross-references: GB:M27968; NID:G182562; PIDN:AAA52534.1; PID:G183087  
 R.Panoliato, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobey, T.; Wetmore, I  
 Biochem. Biophys. Res. Commun. 144, 543-550, 1987  
 A.Title: Multivalent ligand-receptor binding interactions in the fibroblast growth factor  
 A.Reference number: A55784; MUID:94347757; PMID:7520751  
 A.Accession: B55784  
 A.Molecule type: protein  
 A.Residues: 54-71 <PAN>  
 R.Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Mason, G.M.; Thomas, E.J.  
 Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992  
 A.Title: Reverse transcription with nested polymerase chain reaction shows expression of  
 A.Reference number: 152267; MUID:93038590; PMID:1417798  
 A.Accession: 152267  
 A.Status: preliminary; translated from GB/EMBL/DBJ  
 A.Molecule type: mRNA  
 A.Residues: 95-182 <RES>  
 A.Cross-references: GB:S47380; NID:G256535; PIDN:AD013853.1; PID:G4261553  
 A.Experimental source: granulosa cells  
 R.Party, V.; Bugler, B.; Amalric, F.; Prone, J.C.; Prats, H.  
 FEBS Lett. 349, 23-28, 1994  
 A.Title: Purification and characterization of the 210-amino acid recombinant basic fibro  
 A.Reference number: S46253; MUID:94320639; PMID:8045296  
 A.Accession: S46253  
 A.Molecule type: protein  
 A.Residues: 39-53;65-88 <PAT>  
 A.Note: recombinant gene expressed in Escherichia coli  
 C.Genetics:  
 A.Gene: GDB:FGF2; FGFB  
 A.Cross-references: GDB:119910; OMIM:134920  
 A.Map position: 4q25-4q27  
 A.Start codon: CTG  
 C.Superfamily: fibroblast growth factor  
 C.Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; mitoge  
 F.1-210/Product: basic fibroblast growth factor, 22.5k form #status predicted <MA2>  
 F.65-210/Product: basic fibroblast growth factor, 18k form #status predicted <MA2>  
 F.82-86/Region: heparin binding #status predicted  
 F.171-174/Region: heparin binding #status predicted

A.Molecule type: protein  
 A.Residues: 'XXX', 19, 'X', 21-29 <SH2>  
 A.Note: sequence extracted from NCBI backbone (NCBIP:71594)  
 R.Pelge, J.V.; Bradley, J.D.; Frydberg, K.; Farris, J.; Consens, L.C.; Barr, P.J.; Baird,  
 J. Cell Biol. 109, 3105-3114, 1989  
 A.Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylation  
 A.Reference number: A33624; MUID:90078343; PMID:2592418  
 A.Accession: A33624  
 A.Status: preliminary  
 A.Molecule type: protein  
 A.Residues: 57-210 <FEI>  
 R.Story, M.T.; Esch, F.; Shimazaki, S.; Saase, J.; Jacobs, S.C.; Lawson, R.K.  
 Biochem. Biophys. Res. Commun. 142, 702-709, 1987  
 A.Title: Amino-terminal sequence of a large form of basic fibroblast growth factor iso  
 A.Reference number: A25824; MUID:87156686; PMID:2435284  
 A.Accession: A25824  
 A.Molecule type: protein  
 A.Residues: 57-77 <STO>  
 A.Experimental source: prostate  
 R.Gimenez-Gallardo, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.  
 Biochem. Biophys. Res. Commun. 135, 541-548, 1986  
 A.Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal  
 A.Reference number: A90122; MUID:86186784; PMID:3964259  
 A.Accession: B24243  
 A.Molecule type: protein  
 A.Residues: 65-102, 'X', 104-105 <GIM>  
 A.Experimental source: brain  
 R.Gautschi, P.; Frazer-Schröder, M.; Böhlen, P.  
 FEBS Lett. 204, 203-207, 1986  
 A.Title: Partial molecular characterization of endothelial cell mitogens from human brai  
 A.Reference number: A91364; MUID:86275260; PMID:3732516  
 A.Accession: B24301  
 A.Molecule type: protein  
 A.Residues: 65-88, 'X', 90-98, 'X', 100 <GAU>  
 R.Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.  
 Biochem. Biophys. Res. Commun. 144, 543-550, 1987  
 A.Title: A form of human basic fibroblast growth factor with an extended amino terminus  
 A.Reference number: S42242; MUID:87213238; PMID:3579930  
 A.Accession: S42242  
 A.Status: preliminary  
 A.Molecule type: mRNA  
 A.Residues: 54-210 <SOM>

A.Cross-references: EMBL:M17599; NID:G183086; PIDN:AAA52534.1; PID:G183087  
 R.Panoliato, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobey, T.; Wetmore, I  
 Biochem. Biophys. Res. Commun. 144, 543-550, 1987  
 A.Title: Multivalent ligand-receptor binding interactions in the fibroblast growth factor  
 A.Reference number: A55784; MUID:94347757; PMID:7520751  
 A.Accession: B55784  
 A.Molecule type: protein  
 A.Residues: 54-71 <PAN>  
 R.Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Mason, G.M.; Thomas, E.J.  
 Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992  
 A.Title: Reverse transcription with nested polymerase chain reaction shows expression of  
 A.Reference number: 152267; MUID:93038590; PMID:1417798  
 A.Accession: 152267  
 A.Status: preliminary; translated from GB/EMBL/DBJ  
 A.Molecule type: mRNA  
 A.Residues: 95-182 <RES>  
 A.Cross-references: GB:S47380; NID:G256535; PIDN:AD013853.1; PID:G4261553  
 A.Experimental source: granulosa cells  
 R.Party, V.; Bugler, B.; Amalric, F.; Prone, J.C.; Prats, H.  
 FEBS Lett. 349, 23-28, 1994  
 A.Title: Purification and characterization of the 210-amino acid recombinant basic fibro  
 A.Reference number: S46253; MUID:94320639; PMID:8045296  
 A.Accession: S46253  
 A.Molecule type: protein  
 A.Residues: 39-53;65-88 <PAT>  
 A.Note: recombinant gene expressed in Escherichia coli  
 C.Genetics:  
 A.Gene: GDB:FGF2; FGFB  
 A.Cross-references: GDB:119910; OMIM:134920  
 A.Map position: 4q25-4q27  
 A.Start codon: CTG  
 C.Superfamily: fibroblast growth factor  
 C.Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; mitoge  
 F.1-210/Product: basic fibroblast growth factor, 22.5k form #status predicted <MA2>  
 F.65-210/Product: basic fibroblast growth factor, 18k form #status predicted <MA2>  
 F.82-86/Region: heparin binding #status predicted  
 F.171-174/Region: heparin binding #status predicted

Query Match 100.0%; Score 239; DB 2; Length 210;  
 Best Local Similarity 100.0%; Pred. No. 4; 4e-24;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 YCKNGFPLRIHPDGRVGVREKSPHILKLOLQAEKGVSTIKGV 45  
 88 YCKNGFPLRIHPDGRVGVREKSPHILKLOLQAEKGVSTIKGV 132

RESULT 5  
 A31674  
 basic fibroblast growth factor precursor - rat  
 N.Alternate names: bFGF  
 C.Species: Rattus norvegicus (Norway rat)  
 C.Date: 21-May-1990 #sequence revision 21-May-1990 #text\_change 16-Jul-1999  
 R.Shimazaki, S.; Emoto, N.; Koba, A.; Merado, M.; Shibata, F.; Cooke, K.; Baird, A.  
 Biochem. Biophys. Res. Commun. 157, 256-263, 1988  
 A.Title: Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth  
 A.Reference number: A31674; MUID:89061721; PMID:3196337  
 A.Accession: A31674  
 A.Molecule type: mRNA  
 A.Residues: 1-154 <SHT>  
 A.Cross-references: GB:M22427; NID:G204285; PIDN:AAA4110.1; PID:G204286  
 R.Kurokawa, T.; Seno, M.; Igatahshi, K.  
 Nucleic Acids Res. 16, 5201, 1988  
 A.Title: Nucleotide sequence of rat basic fibroblast growth factor cDNA.  
 A.Reference number: S00876; MUID:88262516; PMID:3387229  
 A.Accession: S00876  
 A.Molecule type: mRNA  
 A.Residues: 1-154 <KUR>  
 A.Cross-references: EMBL:X07285; NID:G56203; PIDN:CAA30265.1; PID:G56204  
 R.El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.  
 Biochim. Biophys. Acta 1131, 314-316, 1992

A>Title: PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA cont  
 A:Reference number: S24309; MUID:92329546; PMID:1378302  
 A:Accession: S24309  
 A:Status: preliminary; translation not shown  
 A:Molecule type: mRNA  
 A:Residues: 35-154 <ELH>  
 A:Cross-references: EMBL:X61697; NID:G56143; PIDN:CAA43863.1; PID:G56144  
 A:Superfamily: fibroblast growth factor  
 C:Keywords: growth factor  
 F:10-154/Product: basic fibroblast growth factor #status predicted <SIG>

Query Match 99.6%; Score 238; DB 2; Length 154;  
 Best Local Similarity 97.8%; Pred. No. 4.2e-24;  
 Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Qy 1 YCKNGFFLRHPDGRVDGVRKSDPHIKQLQAEERGVSIKGV 45  
 |||||  
 Db 32 YCKNGFFLRHPDGRVDGVRKSDPHIKQLQAEERGVSIKGV 76

## RESULT 6

C37360  
 basic fibroblast growth factor - mouse  
 C:Species: Mus musculus (house mouse)  
 C:Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 16-Jul-1999  
 C:Accession: C37360  
 R:Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin, G.R.  
 Dev. Biol. 138, 454-463, 1990  
 A>Title: Isolation of cDNAs encoding four mouse FGF family members and characterization  
 A:Reference number: A37360; MUID:90201563; PMID:2318343  
 A:Accession: C37360  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-154 <HEB>  
 A:Cross-references: GB:M30644; NID:G193296; PIDN:AAA7621.1; PID:G309239  
 C:Superfamily: fibroblast growth factor

Query Match 99.6%; Score 238; DB 2; Length 154;  
 Best Local Similarity 97.8%; Pred. No. 4.2e-24;  
 Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Qy 1 YCKNGFFLRHPDGRVDGVRKSDPHIKQLQAEERGVSIKGV 45  
 |||||  
 Db 32 YCKNGFFLRHPDGRVDGVRKSDPHIKQLQAEERGVSIKGV 76

## RESULT 7

A48834  
 basic fibroblast growth factor - chicken  
 C:Species: Gallus gallus (chicken)  
 C:Date: 01-Dec-1993 #sequence\_revision 18-Nov-1994 #text\_change 16-Jul-1999  
 C:Accession: A48834; S23636  
 R:Bojia, A.Z.; Meljers, C.; Zeller, R.  
 Dev. Biol. 157, 110-118, 1993  
 A>Title: Expression of alternatively spliced bFGF first coding exons and antisense mRNA  
 A:Reference number: A48834; MUID:93246053; PMID:7683281  
 A:Accession: A48834  
 A:Status: preliminary  
 A:Molecule type: nucleic acid  
 A:Residues: 1-189 <BOR>  
 A:Experimental source: embryo  
 A>Note: sequence extracted from NCBI backbone (NCBIN:131000, NCBI:131001)  
 R:Miranti, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.  
 Development 109, 387-393, 1990  
 A>Title: Fibroblast growth factor during mesoderm induction in the early chick embryo.  
 A:Reference number: S23636; MUID:90382254; PMID:2401202  
 A:Accession: S23636  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 95-128 <MT>  
 A:Cross-references: EMBL:X56804; NID:G62855; PIDN:CAA40139.1; PID:G62856  
 C:Superfamily: fibroblast growth factor

Query Match 97.1%; Score 232; DB 2; Length 189;  
 Best Local Similarity 97.8%; Pred. No. 3.3e-23;  
 Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Qy 1 YCKNGFFLRHPDGRVDGVRKSDPHIKQLQAEERGVSIKGV 45  
 |||||  
 Db 67 YCKNGFFLRHPDGRVDGVRKSDPHIKQLQAEERGVSIKGV 111

## RESULT 8

S31622  
 basic fibroblast growth factor - short-tailed opossum (Monodelphis domestica) (fragment)  
 C:Species: Monodelphis domestica  
 C:Date: 20-Feb-1995 #sequence\_revision 20-Feb-1995 #text\_change 12-Apr-1995  
 C:Accession: S31622  
 R:Kuewilt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D.  
 submitted to the EMBL Data Library, September 1992  
 A:Description: Characterization of cDNA encoding basic fibroblast growth factor of the m  
 A:Reference number: S31622  
 A:Accession: S31622  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-164 <KUS>  
 A:Cross-references: EMBL:Z15154  
 C:Superfamily: fibroblast growth factor

Query Match 96.7%; Score 231; DB 2; Length 164;  
 Best Local Similarity 95.6%; Pred. No. 3.9e-23;  
 Matches 43; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Qy 1 YCKNGFFLRHPDGRVDGVRKSDPHIKQLQAEERGVSIKGV 45  
 |||||  
 Db 42 YCKNGFFLRHPDGRVDGVRKSDPHIKQLQAEERGVSIKGV 86

## RESULT 9

A40117  
 basic fibroblast growth factor - African clawed frog  
 C:Species: Xenopus laevis (African clawed frog)  
 C:Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999  
 C:Accession: A40117; A29618  
 R:Krimelman, D.; Abraham, J.A.; Haaparanta, T.; Palsai, T.M.; Kirschner, M.W.  
 Science 242, 1053-1056, 1988  
 A>Title: The presence of fibroblast growth factor in the frog egg: its role as a natural  
 A:Reference number: A40117; MUID:89058621; PMID:3194757  
 A:Accession: A40117  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-155 <KIM>  
 A:Cross-references: GB:M18067; NID:G214177; PIDN:AAA49726.1; PID:G214178; GB:M21092  
 R:Krimelman, D.; Kirschner, M.  
 Cell 51, 869-877, 1987  
 A>Title: Synergistic induction of mesoderm by FGF and TGF-beta and the identification of  
 A:Reference number: A29618; MUID:88052890; PMID:3479265  
 A:Accession: A29618  
 A:Molecule type: mRNA  
 A:Residues: 95-110,112-155 <KIT>  
 C:Superfamily: fibroblast growth factor  
 C:Keywords: growth factor

Query Match 83.3%; Score 199; DB 1; Length 155;  
 Best Local Similarity 84.4%; Pred. No. 6.3e-19;  
 Matches 38; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

Qy 1 YCKNGFFLRHPDGRVDGVRKSDPHIKQLQAEERGVSIKGV 45  
 |||||  
 Db 33 YCKNGFFLRHPDGRVDGVRKSDPHIKQLQAEERGVSIKGV 77

## RESULT 10

A60721  
 acidic fibroblast growth factor - golden hamster



N/Alternate names: heparin-binding growth factor 1  
 C/Species: Mesocricetus auratus (golden hamster)  
 C/Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999  
 C/Accession: A60721  
 R/Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.  
 J. Cell. Biochem. 43, 17-26, 1990  
 A/Title: Characterization of the hamster DDT-1 cell aFGF/HBGF-1 gene and cDNA and its mc  
 A/Reference number: A60721; UID:90270291; PMID:1693366  
 A/Accession: A60721  
 A/Status: not compared with conceptual translation  
 A/Molecule type: DNA  
 A/Residues: 1-155 <HAL>  
 C/Superfamily: fibroblast growth factor  
 C/Keywords: growth factor; heparin binding

Query Match 65.3%; Score 156; DB 1; Length 155;  
 Best Local Similarity 68.2%; Pred. No. 3.2e-13;  
 Matches 30; Conservative 3; Mismatches 11; Indels 0; Gaps 0;

Y 1 YKNGGFRLRHPDGRVDGVRKSDPHIKLQQAERGVSITKG 44  
 |||||  
 Db 30 YCSNGHFRLRHPDGRVDGVRKSDPHIKLQQAERGVSITKG 73

RESULT 11  
 S04147  
 acidic fibroblast growth factor 1 - rat  
 N/Alternate names: heparin-binding growth factor 1  
 C/Species: Rattus norvegicus (Norway rat)  
 C/Date: 28-Feb-1990 #sequence\_revision 28-Feb-1990 #text\_change 16-Jul-1999  
 C/Accession: S04147  
 R/Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.  
 Nucleic Acids Res. 17, 2867, 1989  
 A/Title: The nucleotide sequence of rat heparin binding growth factor 1 (HBGF-1).  
 A/Reference number: S04147; UID:8924051; PMID:2470029  
 A/Accession: S04147  
 A/Molecule type: mRNA  
 A/Residues: 1-155 <GOO>  
 A/Cross-references: EMBL:X14232; NID:956351; PIDN:CAA32448.1; PID:956352  
 C/Superfamily: fibroblast growth factor  
 C/Keywords: growth factor; heparin binding

Query Match 65.3%; Score 156; DB 2; Length 155;  
 Best Local Similarity 68.2%; Pred. No. 3.2e-13;  
 Matches 30; Conservative 3; Mismatches 11; Indels 0; Gaps 0;

Y 1 YKNGGFRLRHPDGRVDGVRKSDPHIKLQQAERGVSITKG 44  
 |||||  
 Db 30 YCSNGHFRLRHPDGRVDGVRKSDPHIKLQQAERGVSITKG 73

RESULT 12  
 D37360  
 acidic fibroblast growth factor - mouse  
 N/Alternate names: aFGF; FGF-1  
 C/Species: Mus musculus (house mouse)  
 C/Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 16-Jul-1999  
 C/Accession: D37360; JCS231  
 R/Hebert, J.M.; Basillio, C.; Goldfarb, M.; Haub, O.; Martin, G.R.  
 Dev. Biol. 138, 454-463, 1990  
 A/Title: Isolation of cDNAs encoding four mouse FGF family members and characterization  
 A/Reference number: A37360; UID:90201563; PMID:2318343  
 A/Accession: D37360  
 A/Status: preliminary  
 A/Molecule type: mRNA  
 A/Residues: 1-155 <HEB>  
 A/Cross-references: GB:M30641; NID:9193284; PIDN:AAA37618.1; PID:9309236  
 R/Madai, F.; Hackshaw, K.V.; Chiu, I.M.  
 Gene 179, 231-236, 1996  
 A/Title: Cloning and characterization of the mouse Fgf-1 gene.  
 A/Reference number: JCS231; UID:97128312; PMID:8972905  
 A/Accession: JCS231  
 A/Status: preliminary

A/Molecule type: DNA  
 A/Residues: 1-155 <MAD>  
 A/Cross-references: GB:U36456  
 C/Comment: This protein is an inducer of neovascularization in angiogenic disease inclu  
 C/Genes:  
 A/Genes: Fgf-1  
 A/Introns: 57/1; 91/3  
 C/Superfamily: fibroblast growth factor

Query Match 65.3%; Score 156; DB 2; Length 155;  
 Best Local Similarity 68.2%; Pred. No. 3.2e-13;  
 Matches 30; Conservative 3; Mismatches 11; Indels 0; Gaps 0;

Y 1 YKNGGFRLRHPDGRVDGVRKSDPHIKLQQAERGVSITKG 44  
 |||||  
 Db 30 YCSNGHFRLRHPDGRVDGVRKSDPHIKLQQAERGVSITKG 73

RESULT 13  
 JW0055  
 acidic fibroblast growth factor 1 precursor - sheep  
 N/Alternate names: FGF-1  
 C/Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
 C/Date: 17-Jun-1998 #sequence\_revision 10-Jul-1998 #text\_change 19-Jan-2001  
 C/Accession: JW0055  
 R/Grieb, T.W.; Ring, M.; Brown, E.; Palmer, C.; Belle, N.; Donjerovic, D.; Chang, H.; Y  
 Blochem. Biophys. Res. Commun. 246, 182-191, 1998  
 A/Title: Primary structure of ovine fibroblast growth factor-1 deduced by protein and cd  
 A/Reference number: JW0055; UID:98262939; PMID:9600090  
 A/Accession: JW0055  
 A/Molecule type: mRNA  
 A/Residues: 1-155 <GR1>  
 C/Comment: This protein is a potent mitogenic factor for NIH 3T3 fibroblasts in the abse  
 C/Superfamily: fibroblast growth factor

Query Match 64.4%; Score 154; DB 2; Length 155;  
 Best Local Similarity 67.4%; Pred. No. 5.9e-13;  
 Matches 29; Conservative 5; Mismatches 9; Indels 0; Gaps 0;

Y 1 YKNGGFRLRHPDGRVDGVRKSDPHIKLQQAERGVSITKG 43  
 |||||  
 Db 30 YCSNGHFRLRHPDGRVDGVRKSDPHIKLQQAERGVSITKG 72

RESULT 14  
 A60130  
 acidic fibroblast growth factor - chicken  
 N/Alternate names: endothelial cell growth factor  
 C/Species: Gallus gallus (chicken)  
 C/Date: 03-Mar-1993 #sequence\_revision 03-Mar-1993 #text\_change 16-Jul-1999  
 C/Accession: A60130; S02639  
 R/Schneider, H.; Risaau, W.  
 Development 111, 1143-1154, 1991  
 A/Title: Differentiating and mature neurons express the acidic fibroblast growth factor  
 A/Reference number: A60130; UID:91347925; PMID:1715259  
 A/Accession: A60130  
 A/Status: preliminary  
 A/Molecule type: mRNA  
 A/Residues: 1-155 <SCH>  
 A/Cross-references: GB:S63263; NID:9234372; PIDN:AA19629.1; PID:9234373  
 R/Risaau, W.; Gantschi-Sova, P.; Boehlen, P.  
 EMBO J. 7, 959-962, 1988  
 A/Title: Endothelial cell growth factors in embryonic and adult chick brain are related  
 A/Reference number: S02639; UID:88296438; PMID:3402441  
 A/Accession: S02639  
 A/Molecule type: protein  
 A/Residues: 22-30, 'X', 32-44, 'X', 46-48 <RIS>  
 C/Superfamily: fibroblast growth factor  
 C/Keywords: growth factor

Query Match 64.0%; Score 153; DB 2; Length 155;  
 Best Local Similarity 67.4%; Pred. No. 8e-13;  
 Matches 29; Conservative 5; Mismatches 9; Indels 0; Gaps 0;

```

QY      1 YCKNGGFFLRHPDGRVDGVREKSDPHIKLQLQAEERGVSISK 43
      ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db      30 YCSNGGHFLRLPDGKVDGTRDRSDQHILQLSADVGEVYIK 72

```

RESULT 15

acidic fibroblast growth factor - pig (fragment)  
C:Species: Sus scrofa domestica (domestic pig)  
C:Date: 31-Mar-1992 #sequence\_revision 31-Mar-1992 #text\_change 16-Jul-1999  
C:Accession: JH0476; S20072  
R:Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W.  
B:Biochem. Biophys. Res. Commun. 180, 853-859, 1991  
A>Title: Amplification and sequencing of mRNA encoding acidic fibroblast growth factor  
A:Reference number: JH0476; PMID:92062117; PMID:1715973  
A:Accession: JH0476  
A:Molecule type: mRNA  
A:Residues: 1-152 <SCH>  
A:Cross-references: EMBL:X60317; NID:g1873; PIDN:CAA42869..1; PIDs:g1874  
A:Experimental source: heart  
A>Note: the hydrophobic core residues are packed around the internal symmetry axis  
C:Comment: This protein belongs to the fibroblast growth factor family.  
C:Superfamily: fibroblast growth factor  
C:Keywords: growth factor; heparin binding  
F:22-28/Region: nuclear location signal  
F:133/Binding site: heparin (lys) #status predicted

Query Match            61.9%;     Score 148;   DB 2;   Length 152;  
Best Local Similarity   67.4%;     Pred. No. 3,6e-12;  
Matches       29;   Conservative      3;   Mismatches   11;   Indels          0;   Gaps            0;

Oy                    1 YCRNGGFRLRIHPDGRVDSREKSDPHYKLQQLQAERGVSIR 43  
                     ||||| | | | | | | | | | | | | | | |  
Db                    30 YCSNGGHFLRLIPDGTVGTRDRSPDHITQLQSASVGSRVIYK 72

Search completed: January 30, 2004, 11:46:13  
Job time : 19.3846 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:27:48 ; Search time 10.3846 Seconds  
(without alignments)

203.782 Million cell updates/sec

Title: US-09-266-543-1

Perfect score: 239  
Sequence: 1 YCKNGCFPLRIHPDGRVDV.....PHIKLQLQNERGVSIKGV 45

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 127863 seqs, 47026705 residues

Total number of hits satisfying chosen parameters: 127863

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database : SwissProt\_41.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	239	100.0	137	FGF2_RABIT	P48799 oryctolagus
2	239	100.0	155	FGF2_BOVIN	P03969 bos taurus
3	239	100.0	155	FGF2_HUMAN	P09038 homo sapien
4	239	100.0	155	FGF2_SHEEP	P20003 ovis aries
5	238	99.6	154	FGF2_MOUSE	P15655 mus musculus
6	238	99.6	154	FGF2_RAT	P13109 rattus norv
7	232	97.1	158	FGF2_CHICK	P48800 gallus gall
8	231	96.7	155	FGF2_MONDO	P12226 xenopus lae
9	199	83.3	155	FGF1_XENLA	P34604 mesocricetu
10	156	65.3	155	FGF1_MESAU	P10935 mus musculus
11	156	65.3	155	FGF1_MOUSE	P19396 gallus gall
12	153	64.0	155	FGF1_CHICK	P20002 sus scrofa
13	148	61.9	152	FGF1_PIG	P05230 homo sapien
14	148	61.9	155	FGF1_HUMAN	P03968 bos taurus
15	146	61.1	158	FGF1_BOVIN	P21658 mus musculus
16	103	43.1	105	FGF6_MOUSE	P10767 homo sapien
17	102	42.7	208	FGF6_HUMAN	P48804 gallus gall
18	96	40.2	194	FGF4_CHICK	P48803 bos taurus
19	95	39.7	206	FGF4_BOVIN	P48802 brychydario
20	94.5	39.5	256	FGF3_BRARE	P15656 mus musculus
21	94	39.3	264	FGF5_MOUSE	P48807 rattus norv
22	94	39.3	266	FGF5_RAT	P11403 mus musculus
23	90	37.7	202	FGF4_MOUSE	P12034 homo sapien
24	90	37.7	268	FGF5_HUMAN	P08620 homo sapien
25	85	35.6	206	FGF4_HUMAN	P48801 gallus gall
26	84.5	35.4	220	FGF3_CHICK	P05524 mus musculus
27	83	34.7	245	FGF3_MOUSE	P48805 xenopus lae
28	82	34.3	187	FGF4_XENLA	O92912 homo sapien
29	82	34.3	243	FGF3_HUMAN	O92915 homo sapien
30	80.5	33.7	247	FGF6_HUMAN	P70379 mus musculus
31	80.5	33.7	247	FGF6_MOUSE	P48806 xenopus lae
32	79	33.1	192	FGF3_XENLA	P11487 homo sapien
33	79	33.1	239	FGF3_HUMAN	

34	77	32.2	208	1	FGF4_HUMAN	O15520 homo sapien
35	77	32.2	215	1	FGF4_RAT	P70492 rattus norv
36	76.5	32.0	237	1	FGF3_XENLA	P36380 xenopus lae
37	75.5	31.6	170	1	FGF4_HUMAN	O9np95 homo sapien
38	75	31.4	211	1	FGF4_HUMAN	O9ncto homo sapien
39	73	30.5	209	1	FGF4_MOUSE	O35565 mus musculus
40	71.5	29.9	209	1	FGF4_XENLA	O91875 xenopus lae
41	69.5	29.1	208	1	FGF9_HUMAN	P31371 homo sapien
42	69.5	29.1	208	1	FGF9_MOUSE	P54130 mus musculus
43	69.5	29.1	208	1	FGF9_RAT	P36364 rattus norv
44	67.5	28.2	207	1	FGF4_HUMAN	O43320 homo sapien
45	67.5	28.2	207	1	FGF4_RAT	O54769 rattus norv

## ALIGNMENTS

```

RESULT 1
ID   FGF2_RABIT          STANDARD; PRT; 137 AA.
AC   P48759;
DT   01-FEB-1996 (rel. 33, last sequence update)
DT   01-FEB-1996 (rel. 33, last sequence update)
DT   28-FEB-2003 (rel. 41, last annotation update)
DE   Heparin-binding growth factor 2 (HBGF-2) (Basic fibroblast growth
DE   factor) (BFGF) (Prostatropin) (Fragment).
GN   FGF2.
OS   Oryctolagus cuniculus (Rabbit).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
OX   NCBI_TaxID=9986;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=New Zealand white; TISSUE=Smooth muscle;
RX   MEDLINE=93343209; PubMed=8342599;
RA   Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Iiau G.;
RT   "Elevated expression of basic fibroblast growth factor in an
RT   immortalized rabbit smooth muscle cell line.";
RL   Am. J. Pathol. 143:518-527(1993).
CC   -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC   IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC   VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC   CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC   -1- SUBUNIT: Monomer.
CC   -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC   AFGF.
CC   -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC   -----
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (see http://www.isb-sib.ch/announce/
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CC   -----
DR   EMBL, L12034; AAA31248.1; -.
DR   PIR, I46711; I46711.
DR   HSPR, P09038; IBRF.
DR   InterPro, IPR002348; IL1_HBGF.
DR   Pfam, PF00167; FGF, 1.
DR   PRINTS, PR00262; IL1HBGF.
DR   PRODOM, PD000831; IL1_HBGF, 1.
DR   SMART, SM00442; FGF, 1.
DR   PROSITE, PS00247; HBGF_FGF, 1.
KW   Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT   BINDING          18..22   HEPARIN (POTENTIAL).
FT   BINDING          107..110 HEPARIN (POTENTIAL).
FT   NON_TER          137      HEPARIN (POTENTIAL).
SQ   SEQUENCE        137 AA; 15418 MW; 0D9EB457B88BEC51 CRC64;
Query Match          100.0%; Score 239; DB 1; Length 137;
Best Local Similarity 100.0%; Pred. No. 3.3e-25;

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Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVGVREKSDPHIKLOLAERGVSISKV 45  
 DB 24 YCKNGFFLRHPDGRVGVREKSDPHIKLOLAERGVSISKV 68

RESULT 2  
 EGF2\_BOVIN STANDARD; PRT; 155 AA.  
 AC P03969;  
 DT 23-OCT-1986 (Rel. 02, Created)  
 DT 23-OCT-1986 (Rel. 02, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Hepatn-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatein) [Contains: Kidney-derived growth factor].  
 DE FGF2 OR FGF-2.  
 GN Bos taurus (Bovine).  
 OS Bos taurus (Bovine).  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea; Bovidae; Bovinae; Bos.  
 OC NCBI\_TaxID=9913;  
 RX MEDLINE=86261806; PubMed=2425435;  
 RA Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerlild K.A., Gospodarowicz D., Fiddes J.C.;  
 RT "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";  
 RL Science 233:545-548(1986).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=87217066; PubMed=3472745;  
 RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;  
 RT "Human basic fibroblast growth factor; nucleotide sequence, genomic organization, and expression in mammalian cells.";  
 RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).  
 RN [3]  
 RP SEQUENCE OF 10-155.  
 RX MEDLINE=86016731; PubMed=3863109;  
 RA Besch F., Baird A., Ling N., Ueno N., Hill P., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.;  
 RT "Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FGF.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).  
 RN [4]  
 RP SEQUENCE OF 1-9.  
 RX MEDLINE=86295737; PubMed=3741423;  
 RA Ueno N., Baird A., Besch F., Boehlen P., Ling N., Guillemin R.;  
 RT "Isolation of an amino terminal extended form of basic fibroblast growth factor.";  
 RL Biochem. Biophys. Res. Commun. 138:580-588(1986).  
 RN [5]  
 RP SEQUENCE OF 25-41.  
 RX MEDLINE=86095426; PubMed=4081126;  
 RA Baird A., Besch F., Boehlen P., Ling N., Gospodarowicz D.;  
 RT "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor.";  
 RL Regul. Pept. 12:201-213(1985).  
 RN [6]  
 RP SEQUENCE OF 21-40.  
 RX MEDLINE=87119165; PubMed=3809608;  
 RA Ueno N., Baird A., Besch F., Shimaseki S., Ling N., Guillemin R.;  
 RT "Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic fibroblast growth factor.";  
 RL Regul. Pept. 16:135-145(1986).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS

CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: Monomer.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES  
 CC AFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
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 CC or send an email to [license@ebi.ac.uk](mailto:license@ebi.ac.uk)).  
 CC -----  
 CC DR EMBL; M13440; AAA30518.1; -.  
 CC DR PIR; A24663; GKBOB.  
 CC DR InterPro; IPR002348; IL1\_HBGF.  
 CC DR Pfam; PF00167; FGF; 1.  
 CC DR PRINTS; PR00262; IL1HBGF.  
 CC DR ProDom; PD000831; IL1\_HBGF; 1.  
 CC DR SMART; SM00442; FGF; 1.  
 CC DR PROSITE; PS00247; HBGF\_FGF; 1.  
 CC KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 CC FT PROPEP 1  
 CC FT CHAIN 10 155  
 CC FT SITE 25 155  
 CC FT SITE 46 48  
 CC FT SITE 88 90  
 CC FT BINDING 27 31  
 CC FT BINDING 116 119  
 CC FT STRAND 30 34  
 CC FT TURN 35 38  
 CC FT STRAND 39 43  
 CC FT TURN 45 46  
 CC FT STRAND 49 52  
 CC FT TURN 55 56  
 CC FT HELIX 58 60  
 CC FT STRAND 62 68  
 CC FT TURN 69 70  
 CC FT STRAND 71 76  
 CC FT TURN 77 80  
 CC FT STRAND 81 85  
 CC FT TURN 87 88  
 CC FT STRAND 91 94  
 CC FT HELIX 99 101  
 CC FT STRAND 103 107  
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 CC FT STRAND 113 117  
 CC FT TURN 121 122  
 CC FT STRAND 124 124  
 CC FT TURN 127 127  
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 CC FT STRAND 133 133  
 CC FT HELIX 136 138  
 CC FT TURN 141 142  
 CC FT HELIX 144 146  
 CC FT STRAND 148 151  
 CC SQ SEQUENCE 155 AA; 17250 MW; B8CE70FA6107129 CRC64;

Query Match 100.0%; Score 239; DB 1; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 3,8e-25;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVGVREKSDPHIKLOLAERGVSISKV 45  
 DB 33 YCKNGFFLRHPDGRVGVREKSDPHIKLOLAERGVSISKV 77

RESULT 3  
 FGF2\_HUMAN STANDARD; PRT; 155 AA.

AC P09038;  
 DT 01-NOV-1988 (Rel. 09, Created)  
 DT 01-NOV-1988 (Rel. 09, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BGF) (Procatroptin).  
 GN FG2 OR FGFB.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OC NCBI\_TaxID=9606;  
 RN [1]  
 RP MEDLINE=87217066;  
 RX MEDLINE=87053817; PubMed=3780670;  
 RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J., Gospodarowicz D., Fiddes J.C.;  
 RT "Human basic fibroblast growth factor: nucleotide sequence and genomic organization.";  
 RL EMBO J. 5:2523-2528(1986).  
 RN [2]  
 RP MEDLINE=87217066;  
 RX MEDLINE=87217066; PubMed=3472745;  
 RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;  
 RT "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";  
 RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).  
 RN [3]  
 RP MEDLINE=87213238; PubMed=3579930;  
 RX MEDLINE=87213238; PubMed=3579930;  
 RA Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M., Rifkin B.B.;  
 RT "A form of human basic fibroblast growth factor with an extended amino terminus.";  
 RL Biochem. Biophys. Res. Commun. 144:543-550(1987).  
 RN [4]  
 RP MEDLINE=87162468; PubMed=2435575;  
 RX MEDLINE=87162468; PubMed=2435575;  
 RA Kurikawa T., Sasada R., Iwane M., Igarashi K.;  
 RT "Cloning and expression of cDNA encoding human basic fibroblast growth factor.";  
 RL FEBS Lett. 213:189-194(1987).  
 RN [5]  
 RP MEDLINE=89184522; PubMed=2538817;  
 RX MEDLINE=89184522; PubMed=2538817;  
 RA Prats H., Kagnan M., Prats A.C., Klagsbrun M., Lelias J.M., Lianzun P., Chalou P., Tauber J.P., Amalric F., Smith J.A., Caput D.;  
 RT "High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).  
 RN [6]  
 RP MEDLINE=86275260; PubMed=3732516;  
 RX MEDLINE=86275260; PubMed=3732516;  
 RA Gautschi P., Frater-Schroeder M., Boehlen P.;  
 RT "Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors.";  
 RL FEBS Lett. 204:203-207(1986).  
 RN [7]  
 RP MEDLINE=86186784; PubMed=3964259;  
 RX MEDLINE=86186784; PubMed=3964259;  
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;  
 RT "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities.";  
 RL Biochem. Biophys. Res. Commun. 135:541-548(1986).  
 RN [8]  
 RP MEDLINE=87156686; PubMed=2452284;  
 RX MEDLINE=87156686; PubMed=2452284;  
 RA Story M.T., Bach F., Shimasaki S., Sasase J., Jacobs S.C., Lawson R.K.;  
 RT "Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue.";  
 RL Biochem. Biophys. Res. Commun. 142:702-709(1987).  
 RN [9]  
 RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).

RX MEDLINE=92121151; PubMed=1769963;  
 RA Ago H., Kitagawa Y., Fujishima A., Matsura Y., Katsube Y.;  
 RT "Crystal structure of basic fibroblast growth factor at 1.6-A resolution.";  
 RL J. Biochem. 110:360-363(1991).  
 RN [10]  
 RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).  
 RX MEDLINE=91195367; PubMed=1707542;  
 RA Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;  
 RT "Three-dimensional structure of human basic fibroblast growth factor.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).  
 RN [11]  
 RP X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).  
 RX MEDLINE=91195368; PubMed=1849658;  
 RA Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;  
 RT "Three-dimensional structure of human basic fibroblast growth factor: a structural homolog of interleukin 1 beta.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).  
 RN [12]  
 RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).  
 RX MEDLINE=91095983; PubMed=1702556;  
 RA Zhu X., Komiyama H., Chirino A., Faham S., Fox G.M., Arakawa T., Hsu B.T., Rees D.C.;  
 RT "Three-dimensional structures of acidic and basic fibroblast growth factors.";  
 RL Science 251:90-93(1991).  
 RN [13]  
 RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).  
 RX MEDLINE=94004464; PubMed=7691311;  
 RA Eriksson A.E., Cousens L.S., Matthews B.W.;  
 RT "Refinement of the structure of human basic fibroblast growth factor at 1.6-A resolution and analysis of presumed heparin binding sites by selenate substitution.";  
 RL Protein Sci. 2:1274-1284(1993).  
 RN [14]  
 RP MEDLINE=97040521; PubMed=8885834;  
 RX MEDLINE=97040521; PubMed=8885834;  
 RA Moy F.J., Seddon A.P., Boehlen P., Powers R.;  
 RT "High-resolution solution structure of basic fibroblast growth factor determined by multidimensional heteronuclear magnetic resonance spectroscopy.";  
 RL Biochemistry 35:13552-13561(1996).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: Monomer.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
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 CC EMBL: M17599; AAA52534.1; ALT\_INIT.  
 CC EMBL: X04431; CA28027.1;  
 CC EMBL: X04432; CA28028.1;  
 CC EMBL: X04433; CA28029.1;  
 CC EMBL: M27968; AAA52448.1;  
 CC EMBL: J04513; AAA52533.1; ALT\_INIT.  
 CC PIR: A32398; A32398.  
 CC PDB: 2RGF; 15-APR-92.  
 CC PDB: 4FGF; 15-JUL-93.  
 CC PDB: 1FGA; 15-JUL-93.  
 CC PDB: 1BFB; 03-APR-96.  
 CC PDB: 1BFC; 03-APR-96.  
 CC PDB: 1BFF; 16-JUN-97.

DR PDB; 1BFG; 31-JAN-94.  
 DR PDB; 2BFH; 30-APR-94.  
 DR PDB; 1BLA; 08-NOV-96.  
 DR PDB; 1BLD; 08-NOV-96.  
 DR PDB; 1BAS; 31-OCT-93.  
 DR PDB; 1CVS; 28-JAN-00.  
 DR PDB; 1EV2; 31-MAY-00.  
 DR PDB; 1FQ9; 27-SEP-00.  
 DR PDB; 1I14; 20-JUN-01.  
 DR PDB; 1I1L; 20-JUN-01.  
 DR Genew; HGNC:3676; FGF2.  
 DR MIM; 134920; -.  
 DR GO; GO:0005737; C:cytoplasm; TAS.  
 DR GO; GO:0005615; C:extracellular space; TAS.  
 DR GO; GO:0000187; P:activation of MAPK; TAS.  
 DR GO; GO:0006935; P:chemotaxis; TAS.  
 DR GO; GO:0007397; P:histogenesis and organogenesis; TAS.  
 DR GO; GO:0007399; P:pneurogenesis; TAS.  
 DR GO; GO:0008284; P:positive regulation of cell proliferation; TAS.  
 DR GO; GO:0007265; P:RAS protein signal transduction; TAS.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;  
 KW 3d-structure.  
 FT PROPEP 1 9  
 FT CHAIN 10 155  
 FT SITE 46 48  
 FT SITE 88 90  
 FT BINDING 27 31  
 FT BINDING 116 119  
 FT STRAND 30 34  
 FT TURN 35 38  
 FT STRAND 39 43  
 FT TURN 45 46  
 FT STRAND 49 52  
 FT TURN 55 56  
 FT HELIX 58 60  
 FT STRAND 62 66  
 FT TURN 69 70  
 FT STRAND 71 76  
 FT TURN 77 80  
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 FT TURN 87 88  
 FT STRAND 91 94  
 FT HELIX 99 101  
 FT STRAND 103 107  
 FT TURN 109 110  
 FT STRAND 113 117  
 FT TURN 121 122

Query Match  
 Best Local Similarity 100.0%; Score 239; DB 1; Length 155;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRIRHPDGRVDGVRKSDPHIKLQLAERGVVSISKV 45  
 DB 33 YCKNGFFLRIRHPDGRVDGVRKSDPHIKLQLAERGVVSISKV 77

RESULT 4  
 FGF2\_SHEEP STANDARD; PRT; 155 AA.  
 AC P20003;  
 DT 01-FEB-1991 (Rel. 17, Created)  
 DT 01-FEB-1996 (Rel. 33, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostathropin).  
 GN FGF2 OR FGF-2.

OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea;  
 OC Bovidae; Caprinae; Ovis.  
 OC NCBI\_TaxId=9940;  
 RN (1)  
 RP SEQUENCE FROM N.A.  
 RA Sutton R., Ward W.G., Raphael K.A., Cam G.R.;  
 RL Submitted (SEP-1994) to the EMBL/Genbank/DBJ databases.  
 RN (2)  
 RP SEQUENCE OF 9-155.  
 RX MEDLINE=88055577; PubMed=3678486;  
 RA Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,  
 RA Rubira M.R., Burgess A.W.;  
 RT "Primary structure of ovine pituitary basic fibroblast growth factor";  
 RL FEBS Lett. 224:128-132(1987).  
 CC CC  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: Monomer.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES  
 CC AFGP.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 CC DR EMBL; L36136; AAA31519.1; -.  
 DR HSSP; P09038; 1BFG.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;  
 KW PROPEP 1 9  
 FT CHAIN 10 155  
 FT SITE 46 48  
 FT SITE 87 90  
 FT BINDING 27 31  
 FT BINDING 116 119  
 FT STRAND 155 AA; 17280 MW; B5F2364BA610606D CRC64;  
 SQ SEQUENCE

Query Match  
 Best Local Similarity 100.0%; Score 239; DB 1; Length 155;  
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRIRHPDGRVDGVRKSDPHIKLQLAERGVVSISKV 45  
 DB 33 YCKNGFFLRIRHPDGRVDGVRKSDPHIKLQLAERGVVSISKV 77

RESULT 5  
 FGF2\_MOUSE STANDARD; PRT; 154 AA.  
 AC P15655;  
 DT 01-APR-1990 (Rel. 14, Created)  
 DT 01-APR-1990 (Rel. 14, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostathropin).  
 GN FGF2 OR FGF-2.  
 OS Mus musculus (Mouse).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

OX NCBI\_TaxId=10090;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=90201563; PubMed=2318343;  
 RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;  
 RT "Isolation of cDNAs encoding four mouse FGF family members and  
 characterisation of their expression patterns during embryogenesis.";   
 RL Dev. Biol. 138:454-463(1990).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6J, A/J, and NOD/LtJ; TISSUE=Spleen;  
 RA R.Z., Teuscher C.;  
 RT Submitted (May-1998) to the EMBL/GenBank/DBJ databases.  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: Monomer.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES  
 AFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
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 or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 CC EMBL; M30644; AAA37621.1; -  
 DR EMBL; AF065903; AAC17503.1; -  
 DR EMBL; AF065904; AAC17504.1; -  
 DR EMBL; AF065905; AAC17505.1; -  
 DR F1R; C37360; C37360.  
 DR HSSP; P09038; 1BPF.  
 DR MGD; MG1:95516; Pgf2.  
 DR GO; GO:0005615; C:extracellular space; IDA.  
 DR GO; GO:0045597; P:positive regulation of cell differentiation; IDA.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF\_1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF\_1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 FT PROSEP 1 9  
 FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.  
 FT BINDING 26 30 HEPARIN (POTENTIAL).  
 FT BINDING 115 118 HEPARIN (POTENTIAL).  
 SQ SEQUENCE 154 AA; 17153 MW; 689677416274388 CRC64;  
 QY  
 Query Match 99.6%; Score 238; DB 1; Length 154;  
 Best Local Similarity 97.8%; Pred. No. 5.2e-25;  
 Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;  
 DB 32 YCKNGGFILRHDDGVVDGVRKSDPHITQLQLAERGVSITKGV 45  
 1 YCKNGGFILRHDDGVVDGVRKSDPHITQLQLAERGVSITKGV 45  
 DB 32 YCKNGGFILRHDDGVVDGVRKSDPHITQLQLAERGVSITKGV 76  
 1 YCKNGGFILRHDDGVVDGVRKSDPHITQLQLAERGVSITKGV 76  
 RESULT 6  
 FGF2\_RAT  
 ID FGF2\_RAT STANDARD; PRT; 154 AA.  
 AC P13109;  
 DT 01-JAN-1990 (Rel. 13, Created)  
 DT 01-JAN-1990 (Rel. 13, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast  
 growth factor) (BFGF) (Proscatropin).  
 GN FGF2 OR FGF-2.  
 OS Rattus norvegicus (Rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.  
 OX NCBI\_TaxId=10116;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=Sprague-Dawley; TISSUE=Ovary;  
 RX MEDLINE=89061721; PubMed=3196337;  
 RA Shimazaki S., Emoto N., Koda A., Mercado M., Shubata F.,  
 RA Cooksey K., Baird A., Ling N.;  
 RT "Complementary DNA cloning and sequencing of rat ovarian basic  
 fibroblast growth factor and tissue distribution study of its mRNA.";   
 RL Biochem. Biophys. Res. Commun. 157:256-263(1988).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Brain;  
 RX MEDLINE=88262516; PubMed=3387229;  
 RA Kurokawa T., Sano M., Igarashi K.;  
 RT "Nucleotide sequence of rat basic fibroblast growth factor cDNA.";   
 RL Nucleic Acids Res. 16:5201-5201(1988).  
 RN [3]  
 RP SEQUENCE OF 1-28 FROM N.A.  
 RC STRAIN=Sprague-Dawley; TISSUE=Testis;  
 RX MEDLINE=97200905; PubMed=9048734;  
 RA Pasumartchi K.B.S., Jin Y., Cattini P.A.;  
 RT "Cloning of the rat fibroblast growth factor-2 promoter region and  
 its response to mitogenic stimuli in glioma C6 cells.";   
 RL J. Neurochem. 68:898-908(1997).  
 RN [4]  
 RP SEQUENCE OF 35-154 FROM N.A.  
 RC STRAIN=Sprague-Dawley; TISSUE=Brain;  
 RX MEDLINE=92329546; PubMed=1378302;  
 RA El-Husseini A.E.-D., Paterson J.A., Myal Y., Shu R.P.C.;  
 RT "PCR detection of the rat brain basic fibroblast growth factor (bFGF)  
 mRNA containing a unique 3' untranslated region.";   
 RL Biochim. Biophys. Acta 1131:314-316(1992).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: Monomer.  
 CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES  
 AFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
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 or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 CC EMBL; M22427; AAA41210.1; -  
 DR EMBL; X07285; CAA30265.1; -  
 DR EMBL; U78079; AAC53225.1; -  
 DR EMBL; X61697; CAA43863.1; -  
 DR F1R; A31674; A31674.  
 DR HSSP; P09038; 1BPF.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF\_1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF\_1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 FT PROSEP 1 9  
 FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.  
 FT BINDING 26 30 HEPARIN (POTENTIAL).  
 FT BINDING 115 118 HEPARIN (POTENTIAL).  
 SQ SEQUENCE 154 AA; 17139 MW; 1A0F14PF423D8403 CRC64;  
 QY  
 Query Match 99.6%; Score 238; DB 1; Length 154;  
 Best Local Similarity 97.8%; Pred. No. 5.2e-25;

Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGFFLRHPDGRVDGVREKSDPHIKQLQAEERGVSIKGV 45  
 DB 32 YCKNGFFLRHPDGRVDGVREKSDPHIKQLQAEERGVSIKGV 76

## RESULT 7

FGF2\_CHICK STANDARD; PRT; 158 AA.

AC P48800;  
 DT 01-FEB-1996 (Rel. 33, Created)  
 DT 01-FEB-1996 (Rel. 33, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF).  
 GN FGF2 OR FGF-2. (Chicken).  
 OS Gallus gallus (Chicken).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.  
 OC NCBI\_TaxID=9031;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=93246053; PubMed=7683281;  
 RA Borja A.Z., Zeller R., Meijers C.;  
 RT "Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis."  
 RL Dev. Biol. 157:110-118(1993).

CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: Monomer.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

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CC EMBL; M95707; AAA48617.1; -.  
 DR HSSP; P09038; 1BFF.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR PRODOM; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF\_1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 KW PROPEP 12 BY SIMILARITY.  
 FT CHAIN 13 158 HEPARIN-BINDING GROWTH FACTOR 2.  
 FT BINDING 30 34 HEPARIN (POTENTIAL).  
 FT BINDING 119 122 HEPARIN (POTENTIAL).  
 SQ SEQUENCE 158 AA; 17374 MW; 7B69B684C17F1816 CRC64;

Query Match 97.1%; Score 232; DB 1; Length 158;  
 Best Local Similarity 97.8%; Pred. No. 3.5e-24;  
 Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGFFLRHPDGRVDGVREKSDPHIKQLQAEERGVSIKGV 45  
 DB 36 YCKNGFFLRHPDGRVDGVREKSDPHIKQLQAEERGVSIKGV 80

RESULT 8  
 FGF2\_MONDO STANDARD; PRT; 156 AA.

AC P48798;  
 DT 01-FEB-1996 (Rel. 33, Created)  
 DT 01-FEB-1996 (Rel. 33, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prolatropin).  
 GN FGF2.  
 OS Monodelphis domestica (Short-tailed grey opossum).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.  
 OC NCBI\_TaxID=13616;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=94296558; PubMed=8024698;  
 RA Kusewit D.F., Sabourin C.L.K., Sheburn T.E., Ley R.D.;  
 RT "Characterization of cDNA encoding basic fibroblast growth factor of the marsupial Monodelphis domestica."  
 RL DNA Cell Biol. 13:549-554(1994).

CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: Monomer.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

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CC EMBL; Z15154; CA478854.1; ALT\_INIT.  
 DR HSSP; P09038; 1BFF.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR PRODOM; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 KW PROPEP 9 BY SIMILARITY.  
 FT CHAIN 10 156 HEPARIN-BINDING GROWTH FACTOR 2.  
 FT BINDING 28 32 HEPARIN (POTENTIAL).  
 FT BINDING 117 120 HEPARIN (POTENTIAL).  
 SQ SEQUENCE 156 AA; 17303 MW; 7E655FCC49BF1209 CRC64;

Query Match 96.7%; Score 231; DB 1; Length 156;  
 Best Local Similarity 95.6%; Pred. No. 4.7e-24;  
 Matches 43; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGFFLRHPDGRVDGVREKSDPHIKQLQAEERGVSIKGV 45  
 DB 34 YCKNGFFLRHPDGRVDGVREKSDPHIKQLQAEERGVSIKGV 78

RESULT 9  
 FGF2\_XENLA STANDARD; PRT; 155 AA.

AC P12226;  
 DT 01-OCT-1989 (Rel. 12, Created)  
 DT 01-JAN-1990 (Rel. 13, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF).  
 GN FGF2 OR FGF-2.  
 OS Xenopus laevis (African clawed frog).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;



OC Xenopodinae; Xenopus.  
 OX NCBI\_TaxID=8355;  
 [1]  
 RP SEQUENCE FROM N.A.  
 RA MEDLINE=89058621; PubMed=3194757;  
 RA Kimehman D., Adirham J., Haaparanta T., Pajet T., Kirschner M.;  
 RT "The presence of fibroblast growth factor in the frog egg: its role  
 as a natural mesoderm inducer."  
 RL Science 242:1053-1056(1988).  
 RN [2]  
 RP SEQUENCE OF 95-155 FROM N.A.  
 RX MEDLINE=89052890; PubMed=3479265;  
 RA Kimehman D., Kirschner M.;  
 RT "Synergistic induction of mesoderm by FGF and TGF-beta and the  
 identification of an mRNA coding for FGF in the early Xenopus  
 embryo."  
 RL Cell 51:869-877(1987).  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 CC DR EMBL, M18067; AAA49726.1; -  
 DR PIR, A40117; A40117.  
 DR HSSP; P09038; 1BF.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR Prodom; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 DR PROPEP 1 9  
 FT CHAIN 10 155 HEPARIN-BINDING GROWTH FACTOR 2.  
 FT BINDING 27 31 HEPARIN (POTENTIAL).  
 FT 116 119 HEPARIN (POTENTIAL).  
 FT CONFLICT 111 111 MISSING (IN REF. 2).  
 SQ SEQUENCE 155 AA; 17241 MW; 036735C8063142FD CRC64;  
 Query Match 83.3%; Score 199; DB 1; Length 155;  
 Best Local Similarity 84.4%; Pred. No. 9.8e-20;  
 Matches 38; Conservative 3; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 YCKNGGFPLRHPDGVREKSDPHIKLQQAERGVSIGK 45  
 DB 33 YCKNGGFPLRHPDGVREKSDPHIKLQQAERGVSIGK 77  
 RESULT 10  
 ID FGF1\_MESAU STANDARD; PRT; 155 AA.  
 AC P34004;  
 DT 01-FEB-1994 (Rel. 28, Created)  
 DT 01-FEB-1994 (Rel. 28, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast  
 DE growth factor) (AFGF).  
 GN FGF1 OR FGF-1.  
 OS Mesocricetus auratus (Golden hamster).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;  
 OC Mesocricetus.  
 OX NCBI\_TaxID=10036;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=90270291; PubMed=1693366;  
 RA Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E.;  
 RT "Characterization of the hamster DDT-1 cell afGF/HBGF-1 gene and cDNA

RT and its modulation by steroids."  
 RL J. Cell. Biochem. 43:17-26(1990).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: Monomer.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY  
 CC THAN DOES BFGF.  
 CC -----  
 CC DR -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 DR PIR; A60721; A60721.  
 DR HSSP; P05230; 1RML.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR Prodom; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 DR PROPEP 1 15  
 FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.  
 FT BINDING 24 28 HEPARIN (POTENTIAL).  
 FT 113 116 HEPARIN (POTENTIAL).  
 SQ SEQUENCE 155 AA; 17403 MW; 41B5EC760B412CC5 CRC64;  
 Query Match 65.3%; Score 156; DB 1; Length 155;  
 Best Local Similarity 68.2%; Pred. No. 6.3e-14;  
 Matches 30; Conservative 3; Mismatches 11; Indels 0; Gaps 0;  
 QY 1 YCKNGGFPLRHPDGVREKSDPHIKLQQAERGVSIGK 44  
 DB 30 YCKNGGFPLRHPDGVREKSDPHIKLQQAERGVSIGK 73  
 RESULT 11  
 ID FGF1\_MOUSE STANDARD; PRT; 155 AA.  
 AC P10935;  
 DT 01-JUL-1989 (Rel. 11, Created)  
 DT 01-JUL-1989 (Rel. 11, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast  
 DE growth factor) (AFGF).  
 GN FGF1 OR FGF-1 OR FGFA.  
 OS Mus musculus (Mouse), and  
 OS Rattus norvegicus (Rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.  
 OX NCBI\_TaxID=10090, 10116;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC SPECIES=Rat;  
 RA MEDLINE=89240051; PubMed=2470029;  
 RA Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;  
 RT "The nucleotide sequence of rat heparin binding growth factor 1  
 RT (HBGF-1)."  
 RL Nucleic Acids Res. 17:2867-2867(1989).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC SPECIES=Mouse;  
 RA MEDLINE=90201563; PubMed=2318343;  
 RA Hebert J.M., Basilio C., Goldfarb M., Haub O., Martin G.R.;  
 RT "Isolation of cDNAs encoding four mouse FGF family members and  
 RT characterization of their expression patterns during embryogenesis."  
 RL Dev. Biol. 138:454-463(1990).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC SPECIES=Mouse;  
 RA MEDLINE=97128312; PubMed=8972905;  
 RA Madlat F., Hackshaw K.V., Chiu I.M.;  
 RT "Cloning and characterization of the mouse Fgf-1 gene."  
 RL Gene 179:231-236(1996).  
 RN [4]



OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.  
 OX NCBI\_TaxID=9823;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Heart;  
 RX MEDLINE=92062117; PubMed=1719973;  
 RA Schmidt W., Sharma H.S., Schott R.J., Schaper W.;  
 RT "Amplification and sequencing of mRNA encoding acidic fibroblast  
 growth factor (afgf) from porcine heart."  
 RL Biochem. Biophys. Res. Commun. 180:853-859 (1991).  
 RN [2]  
 RP SEQUENCE OF 22-41.  
 RX MEDLINE=89231704; PubMed=2714282;  
 RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Lueche N.,  
 RT "Isolation of heparin-binding growth factors from bovine, porcine and  
 canine hearts."  
 RL Eur. J. Biochem. 181:67-73 (1989).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: Monomer.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY  
 THAN DOES BFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
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 CC  
 CC EMBL: X60317; CAA42869.1; -  
 DR PIR: JH0476; JH0476.  
 DR HSSP: P05230; 2AMX.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam: PR00167; FGF\_1.  
 DR PRINTS: PR00262; IL1HBGF.  
 DR ProDom: PD000831; IL1\_HBGF; 1.  
 DR SMART: SM00442; FGF; 1.  
 DR PROSITE: PS00247; HBGF\_FGF; 1.  
 KM Growth factor: Mitogen; Angiogenesis; Heparin-binding.  
 FT PROPEP 1 15  
 FT CHAIN 16 >152 HEPARIN-BINDING GROWTH FACTOR 1.  
 FT CHAIN 22 >152 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.  
 FT BINDING 24 28 HEPARIN (POTENTIAL).  
 FT BINDING 113 116 HEPARIN (POTENTIAL).  
 FT CONFLICT 31 31 C -> S (IN REF. 2).  
 FT CONFLICT 39 39 R -> Y (IN REF. 2).  
 FT NON\_TER 152 152  
 SQ SEQUENCE 152 AA; 17103 MW; AE853B0A92F9ABF4 CRC64;

Query Match 61.9%; Score 148; DB 1; Length 152;  
 Best Local Similarity 67.4%; Pred. NO. 7.5e-13;  
 Matches 29; Conservative 3; Mismatches 11; Indels 0; Gaps 0;

QY 1 YKNGGFFLRHPDGVDRVREKSDPHILQLQAEERGVVSIK 43  
 DB 30 YSNGGHFLRLPDGVDRGRSDQHILQLQSAESVGEVYIK 72

RESULT 14  
 FGL1\_HUMAN STANDARD; PRT; 155 AA.  
 AC P05230; P07502;  
 DT 13-AUG-1987 (Rel. 05, Created)  
 DT 13-AUG-1987 (Rel. 05, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Heparin-binding factor 1 precursor (HBGF-1) (Acidic fibroblast  
 growth factor) (AFGF) (Beta-endothelial cell growth factor) (ECGF-

DE beta).  
 GN FGL1 OR FGPA.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=86261805; PubMed=3523756;  
 RA Jaye M., Howk R., Burgess W., Ricca G.A., Chiu I.-M., Ravera M.W.,  
 RT "Human endothelial cell growth factor: cloning, nucleotide sequence,  
 and chromosome localization."  
 RL Science 233:541-545 (1986).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Brain stem;  
 RX MEDLINE=89343957; PubMed=2474753;  
 RA Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  
 RT "Cloning of the gene coding for human class 1 heparin-binding growth  
 factor and its expression in fetal tissues."  
 RL Mol. Cell. Biol. 9:2387-2395 (1989).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Brain stem;  
 RX MEDLINE=90265618; PubMed=1693186;  
 RA Chiu I.M., Wang W.P., Lehtoma K.;  
 RT "Alternative splicing generates two forms of mRNA coding for human  
 heparin-binding growth factor 1."  
 RL Oncogene 5:755-762 (1990).  
 RN [4]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=90073637; PubMed=2590193;  
 RA Merzia A., Tischer E., Graves D., Tunolo A., Miller J.,  
 RT "Structural analysis of the gene for human acidic fibroblast growth  
 factor."  
 RL Biochem. Biophys. Res. Commun. 164:1121-1129 (1989).  
 RN [5]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=92019619; PubMed=1717925;  
 RA Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.;  
 RT "Cloning and sequence analysis of the human acidic fibroblast growth  
 factor gene and its preservation in leukemia patients."  
 RL Oncogene 6:1521-1529 (1991).  
 RN [6]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=92202857; PubMed=1372643;  
 RA Li Y.L., Kha H., Golden J.A., Mighelielsen A.A.J., Goetzl E.J.,  
 RT "An acidic fibroblast growth factor protein generated by alternate  
 splicing acts like an antagonist."  
 RL J. Exp. Med. 175:1073-1080 (1992).  
 RN [7]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Liver;  
 RX MEDLINE=92286257; PubMed=12477932;  
 RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,  
 RA Klausner R.D., Collins F.S., Wagner L., Shemen C.M., Schuler G.D.,  
 RA Altschul S.F., Zeeberg B., Buetow K.H., Scheffer C.F., Bhat N.K.,  
 RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,  
 RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,  
 RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,  
 RA Brownstein M.J., Umed T.B., Toshitoki S., Carninci P., Frange C.,  
 RA Raha S.S., McEwan P.N.A., Peters G.J., Abramson R.D., Mullaby S.J.,  
 RA Bosak S.A., McKernan K.J., McKernan K.J., Malek J.A., Gunaratne P.H.,  
 RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulik S.W.,  
 RA Villalón D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,  
 RA Pahay J., Helton E., Kettelman M., Madan A., Rodriguez S., Sanchez A.,  
 RA Whiting M., Nadeau A., Young A.C., Shevchenko Y., Boulford G.G.,  
 RA Bialesley R.W., Touchman J.W., Green E.D., Dickson M.C.,  
 RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,  
 RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smalins D.E.,

RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;  
 RT "Generation and initial analysis of more than 15,000 full-length  
 human and mouse cDNA sequences.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).  
 RN [8]  
 RN SEQUENCE OF 1-154 FROM N.A.  
 RX MEDLINE=94069734; PubMed=7504343;  
 RA Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;  
 RT "The expression of acidic fibroblast growth factor (heparin-binding  
 growth factor-1) and cytokine genes in human cardiac allografts and T  
 cells.";  
 RL Transplantation 56:1177-1182(1993).  
 RN [9]  
 RN SEQUENCE OF 1-40 FROM N.A.  
 RX MEDLINE=90365758; PubMed=2393407;  
 RA Crumley G., Diome C.A., Jave M.;  
 RT "The gene for human acidic fibroblast growth factor encodes two  
 upstream exons alternatively spliced to the first coding exon.";  
 RL Biochem. Biophys. Res. Commun. 171:7-13(1990).  
 RN [10]  
 RN SEQUENCE OF 16-155.  
 RX MEDLINE=86296647; PubMed=2427112;  
 RA Harper J.W., Strypdom D.J., Lobb R.R.;  
 RT "Human class I heparin-binding growth factor: structure and homology  
 to bovine acidic brain fibroblast growth factor.";  
 RL Biochemistry 25:4097-4103(1986).  
 RN [11]  
 RN SEQUENCE OF 16-155.  
 RX MEDLINE=86295741; PubMed=3527167;  
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;  
 RT "The complete amino acid sequence of human brain-derived acidic  
 fibroblast growth factor.";  
 RL Biochem. Biophys. Res. Commun. 138:611-617(1986).  
 RN [12]  
 RN SEQUENCE OF 16-155.  
 RX MEDLINE=87048871; PubMed=3778488;  
 RA Gautschi-Sova P., Mueller T., Boehlen P.;  
 RT "Amino acid sequence of human acidic fibroblast growth factor.";  
 RL Biochem. Biophys. Res. Commun. 140:874-880(1986).  
 RN [13]  
 RN SEQUENCE OF 16-47.  
 RX MEDLINE=86186784; PubMed=3964259;  
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;  
 RT "Human brain-derived acidic and basic fibroblast growth factors:  
 amino terminal sequences and specific mitogenic activities.";  
 RL Biochem. Biophys. Res. Commun. 135:541-548(1986).  
 RN [14]  
 RN SEQUENCE OF 16-49.  
 RX MEDLINE=86275260; PubMed=372516;  
 RA Gautschi P., Prater-Schroeder M., Boehlen P.;  
 RT "Partial molecular characterization of endothelial cell mitogens from  
 human brain: acidic and basic fibroblast growth factors.";  
 RL FEBS Lett. 204:203-207(1986).  
 RN [15]  
 RN X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).  
 RX MEDLINE=96194129; PubMed=8652550;  
 RA Blaber M., Disalvo J., Thomas K.A.;  
 RT "X-ray crystal structure of human acidic fibroblast growth factor.";  
 RL Biochemistry 35:2086-2094(1996).  
 RN [16]  
 RN STRUCTURE BY NMR OF 24-155.  
 RX MEDLINE=94358885; PubMed=7521397;  
 RA Pineda-Jucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico M.,  
 Gimenez-Gallego G.;  
 RT "1H-NMR assignment and solution structure of human acidic fibroblast  
 growth factor activated by inositol hexaullate.";  
 RL J. Mol. Biol. 242:81-98(1994).  
 RN [17]  
 RN STRUCTURE BY NMR OF 24-155.  
 RX MEDLINE=97107535; PubMed=8950275;  
 RA Pineda-Jucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J.,  
 Rico M., Gimenez-Gallego G.;  
 RT "Three-dimensional structure of acidic fibroblast growth factor in

RT solution: effects of binding to a heparin functional analog.";  
 RL J. Mol. Biol. 264:162-178(1996).  
 RN [18]  
 RN STRUCTURE BY NMR OF 25-155.  
 RX MEDLINE=96387896; PubMed=9719643;  
 RA Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.;  
 RT "Solution structure of acidic fibroblast growth factor bound to 1,3,  
 6-naphthalenesulfonate: a minimal model for the anti-tumoral  
 action of suramin and suradietas.";  
 RL J. Mol. Biol. 281:899-915(1998).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: Monomer.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY  
 CC THAN DOES BFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
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 CC or send an email to [license@ebi.ac.uk](mailto:license@ebi.ac.uk)).  
 CC -----  
 DR EMBL: M13361; AAA79245.1; -  
 DR EMBL: X51943; CAA36206.1; -  
 DR EMBL: M30492; AAA52446.1; -  
 DR EMBL: M30490; AAA52446.1; JOINED.  
 DR EMBL: M30491; AAA52446.1; JOINED.  
 DR EMBL: M60515; AAA51672.1; -  
 DR EMBL: M60516; AAA51673.1; -  
 DR EMBL: M23087; AAA52638.1; -  
 DR EMBL: M23086; AAA52638.1; JOINED.  
 DR EMBL: BC032697; AAA32697.1; -  
 DR EMBL: S67291; AAB29057.2; -  
 DR EMBL: X65778; CAA46661.1; -  
 DR PIR: A33665; A33665.  
 DR PDB: 2AFG; 15-OCT-95.  
 DR PDB: 1AXM; 22-APR-98.  
 DR PDB: 2AXM; 22-APR-98.  
 DR PDB: 1RML; 11-NOV-98.  
 DR PDB: 1DJS; 23-JUN-00.  
 DR PDB: 1DZC; 02-JUN-00.  
 DR PDB: 1DZD; 09-JUN-00.  
 Query Match 61.9%; Score 148; DB 1; Length 155;  
 Best Local Similarity 67.4%; Pred. No. 7,6e-13;  
 Matches 29; Conservative 3; Mismatches 11; Indels 0; Gaps 0;  
 QY 1 YCKNGFLRLHPDGRVGVREKSDPHIKLOLQAEKGVSIK 43  
 DB 30 YCSNGFLRLIPDGTVDGTRDRSDPHIOLQSAESVGEVYIK 72  
 RESULT 15  
 FGFL\_BOVIN  
 AC FGFL\_BOVIN STANDARD; PRT; 155 AA.  
 ID P03968;  
 DT 23-OCT-1986 (Rel. 02, Created)  
 DT 01-MAR-1989 (Rel. 10, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (acidic fibroblast  
 DE growth factor) (AFGF) (prolactoplin) (endothelial cell growth factor  
 DE beta and alpha chains) (acidic eye-derived growth factor II) (EDGF  
 DE II).  
 GN FGFL OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.  
 OS Bos taurus (Bovine).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Bovinae; Bos.

OK NCBI\_TaxID=9913;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Retina;  
 RX MEDLINE=89083506; PubMed=3205724;  
 RA Halley C., Courtois Y., Laurent M.;  
 RT "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA.";  
 RL Nucleic Acids Res. 16:10913-10913(1988).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Retina;  
 RX MEDLINE=89078619; PubMed=2849564;  
 RA Alberto J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M.;  
 RT "Characterization of a bovine acidic FGF cDNA clone and its  
 expression in brain and retina.";  
 RL FEBS Lett. 242:41-46(1988).  
 RN [3]  
 RP SEQUENCE OF 2-155.  
 RX MEDLINE=87016918; PubMed=3532107;  
 RA Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., Maciag T.;  
 RT "Structural evidence that endothelial cell growth factor beta is the  
 precursor of both endothelial cell growth factor alpha and acidic  
 fibroblast growth factor.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).  
 RN [4]  
 RP SEQUENCE OF 2-155.  
 RX MEDLINE=87026586; PubMed=3768327;  
 RA Crabb J.W., Ames L.G., Carr S.A., Johnson C.M., Roberts G.D.,  
 RT Bortoli R.S., McKeenan W.L.;  
 RL "Complete primary structure of prostatropin, a prostate epithelial  
 cell growth factor.";  
 RN Biochemistry 25:4988-4993(1986).  
 RN [5]  
 RP SEQUENCE OF 16-155.  
 RX MEDLINE=86070224; PubMed=4071057;  
 RA Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,  
 RT Disalvo J., Thomas K.;  
 RL "Brain-derived acidic fibroblast growth factor: complete amino acid  
 sequence and homologues.";  
 RN Science 230:1385-1388(1985).  
 RN [6]  
 RP SEQUENCE OF 16-44, AND COMPOSITION.  
 RX MEDLINE=86055750; PubMed=4065099;  
 RA Boehlen P., Esch F., Baird A., Gospodarowicz D.;  
 RT "Acidic fibroblast growth factor (FGF) from bovine brain:  
 amino-terminal sequence and comparison with basic FGF.";  
 RL EMBO J. 4:1951-1956(1985).  
 RN [7]  
 RP SEQUENCE OF 16-56 FROM N.A.  
 RX MEDLINE=86261806; PubMed=2425435;  
 RA Abraham J.A., Merzia A., Whang J.L., Tunojo A., Friedman J.,  
 RT Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;  
 RL "Nucleotide sequence of a bovine clone encoding the angiogenic  
 protein, basic fibroblast growth factor.";  
 RN Science 233:545-548(1986).  
 RN [8]  
 RP SEQUENCE OF 16-45.  
 RX MEDLINE=89231704; PubMed=2714282;  
 RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luehe N.,  
 RT Shatma H.S., Schaper W.;  
 RL "Isolation of heparin-binding growth factors from bovine, porcine and  
 canine hearts.";  
 RN Eur. J. Biochem. 181:67-73(1989).  
 RN [9]  
 RP SEQUENCE OF 1-18 FROM N.A.  
 RA Philippe J.M., Renaud F., Desset S., Laurent M.;  
 RL Submitted (JUL-1992) to the EMBL/GenBank/DBJ databases.  
 RN [10]  
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).  
 RX MEDLINE=91095983; PubMed=1702556;  
 RA Zhu X., Komlya H., Chitrino A., Faham S., Fox G.M., Arakawa T.,  
 RT Hsu B.T., Rees D.C.;  
 RL "Three-dimensional structures of acidic and basic fibroblast growth

RT factors.";  
 RL Science 251:90-93(1991).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: Monomer.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY  
 CC THAN DOES BFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL, M13439; AAA30516.1; -;  
 DR EMBL, X13221; CAA31610.1; -;  
 DR EMBL, X14032; CAA32192.1; -;  
 DR EMBL, M35608; AAA30517.1; -;  
 DR EMBL, X66446; CAA47063.1; -;  
 DR EMBL, M97660; AAA30563.1; -;  
 DR EMBL, M97661; AAA30564.1; -;  
 DR PIR, JH0613; GKBOA.  
 DR PDB, 1BAR; 31-OCT-93.  
 DR PDB, 1APC; 31-OCT-93.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF\_1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;  
 KW 3D-structure.  
 FT PROPEP 1 15  
 FT CHAIN 2 155  
 FT CHAIN 16 155  
 FT CHAIN 22 155  
 FT MOD RES 2 2  
 FT BINDING 113 116  
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 FT TURN 23 24  
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 FT STRAND 82 82  
 FT TURN 84 85  
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 FT STRAND 100 104  
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 FT STRAND 110 114  
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 FT STRAND 126 126  
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 FT STRAND 131 132  
 FT STRAND 131 132

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 FT STRAND 147 151  
 SQ SEQUENCE 155 AA; 17493 MW; F636641F189F9BFD CRC64;

Query Match 61.1%; Score 146; DB 1; Length 155;  
 Best Local Similarity 65.1%; Pred. No. 1.4e-12;  
 Matches 28; Conservative 5; Mismatches 10; Indels 0; Gaps 0;

QY 1 YCKNGGFPLRIHPDGRVDGVREKSDPHIKLOLAEEERGVSIX 43  
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 DB 30 YCSNGYFLRIIPDGTVDGTNRSDQHIOQLCAESIGEVYIX 72

Search completed: January 30, 2004, 11:41:02  
 Job time : 11.3846 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:33:38 ; Search time 46.6154 Seconds  
(without alignments)  
249.110 Million cell updates/sec

Title: US-09-266-543-1

Perfect score: 239  
Sequence: 1 YCKNGGFRLRHPDGRVDV.....PHIKLQAEKRGVSIKGV 45

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 830525 seqs, 258052604 residues

Total number of hits satisfying chosen parameters: 830525

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%  
Listing first 45 summaries

Database :

SPTREMBL\_23:\*  
1: sp\_archaea:\*  
2: sp\_bacteria:\*  
3: sp\_fungi:\*  
4: sp\_human:\*  
5: sp\_invertebrate:\*  
6: sp\_mammal:\*  
7: sp\_mhc:\*  
8: sp\_organelle:\*  
9: sp\_phage:\*  
10: sp\_plant:\*  
11: sp\_rodent:\*  
12: sp\_virus:\*  
13: sp\_vertebrate:\*  
14: sp\_unclassified:\*  
15: sp\_virus:\*  
16: sp\_bacteriap:\*  
17: sp\_archaeap:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	239	100.0	196	4 P78443	P78443 homo sapien
2	238	99.6	130	6 O77767	O77767 canis fam11
3	238	99.6	153	11 Q925A3	Q925A3 mus musculu
4	212	88.7	170	11 O60487	O60487 cavia porce
5	203	84.9	101	13 P79706	P79706 cynops pyrr
6	203	84.9	125	13 Q987D8	Q987D8 cynops pyrr
7	203	84.9	155	13 Q90192	Q90192 cynops pyrr
8	188	78.7	87	6 Q8WMP4	Q8WMP4 equus cabal
9	184	77.0	108	6 Q9N1S7	Q9N1S7 capreolus c
10	179	74.9	111	6 Q9BDX1	Q9BDX1 macaca mula
11	179	74.9	155	13 Q8QFR9	Q8QFR9 fugu rubrip
12	156	65.3	114	4 Q16443	Q16443 homo sapien
13	156	65.3	114	4 Q00527	Q00527 homo sapien
14	148	61.9	62	6 Q8SP12	Q8SP12 equus cabal
15	140	58.6	106	6 Q9N1S8	Q9N1S8 capreolus c
16	118	49.4	59	4 Q9UBK1	Q9UBK1 homo sapien

17	109	45.6	59	4 Q16089	Q16089 homo sapien
18	109	45.6	60	4 Q16588	Q16588 homo sapien
19	109	45.6	70	11 Q54837	Q54837 mus musculu
20	104	43.5	76	6 Q9N0V2	Q9N0V2 ovis aries
21	103	43.1	195	11 Q8C399	Q8C399 mus musculu
22	103	43.1	208	11 Q8R5L5	Q8R5L5 ratu8 norv.
23	101	42.3	201	13 Q8AY90	Q8AY90 brachydantio
24	98.5	41.2	146	13 Q07659	Q07659 gallus galli
25	98	41.0	205	13 Q8AXA1	Q8AXA1 brachydantio
26	95	39.7	206	13 Q9YGP8	Q9YGP8 oncorhynchus
27	90	37.7	268	4 Q8NFP0	Q8NFP0 homo sapien
28	86	36.0	124	13 Q90X05	Q90X05 amyctoma m
29	84	35.1	196	13 Q9YH31	Q9YH31 notophthalm
30	83	34.7	109	11 Q925A1	Q925A1 mus musculu
31	83	34.7	111	13 Q90X01	Q90X01 amyctoma m
32	83	34.7	245	11 Q8R5L9	Q8R5L9 ratu8 norv
33	82	34.3	78	11 Q35340	Q35340 mus musculu
34	82	34.3	127	4 Q99517	Q99517 homo sapien
35	82	34.3	181	4 Q8T8G5	Q8T8G5 homo sapien
36	82	34.3	181	11 Q924B4	Q924B4 mus musculu
37	81.5	34.1	195	11 Q8R5L6	Q8R5L6 ratu8 norv
38	81.5	34.1	237	13 Q91A16	Q91A16 gallus galli
39	81.5	34.1	253	13 Q91A15	Q91A15 gallus galli
40	80.5	33.7	211	11 Q8R4X0	Q8R4X0 ratu8 norv
41	80.5	33.7	247	11 Q8R5L7	Q8R5L7 ratu8 norv
42	80.5	33.7	247	11 Q8BSF0	Q8BSF0 mus musculu
43	80.5	33.7	252	11 Q89096	Q89096 mus musculu
44	79	33.1	112	11 Q925A2	Q925A2 mus musculu
45	77.5	32.4	208	13 Q9PY11	Q9PY11 xenopus lae

## ALIGNMENTS

RESULT 1  
ID P78443 PRELIMINARY; PRT; 196 AA.  
AC P78443;  
DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)  
DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)  
DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
DE 21 kDa basic fibroblast growth factor (BFGF).  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
OK NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=89184522; PubMed=2538817;  
RA Prates H., Kaghad M., Prates A.C., Klagesbrun M., Leijaa J.M.,  
Liauzun P., Chalton P., Tauber U.P., Amalric F., Smith U.A., Caput D.;  
RT "High molecular mass forms of basic fibroblast growth factor are  
initiated by alternative CUG codons."  
RT Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).  
RN [2]  
RP SEQUENCE OF 81-168 FROM N.A.  
RX MEDLINE=93038590; PubMed=1417798;  
RA Watson R., Anthony F., Pickett M., Lambden P., Mason G.M.,  
Thomas E.J.;  
RT "Reverse transcription with nested polymerase chain reaction shows  
expression of basic fibroblast growth factor transcripts in human  
granulosa and cumulus cells from in vitro fertilization patients."  
RT Biochem. Biophys. Res. Commun. 187:1227-1231(1992).  
RL EMBL; J04513; AAA52532.1; -;  
DR EMBL; S47380; AAD13853.1; -;  
DR HSSP; P09038; 1BFF.  
DR InterPro; IPR002348; IL1\_HBGF.  
DR Pfam; PF00167; FGF\_1\_HBGF.  
DR PRINTS; PR00262; IL1HBGF.  
DR Prodom; PD000831; IL1\_HBGF.  
DR SMART; SM00442; FGF\_1.  
DR PROSITE; PS00247; HBGF\_FGF\_1.

SQ SEQUENCE 196 AA; 21203 MW; DB5447137B60343 CRC64;

Query Match 100.0%; Score 239; DB 4; Length 196;

Best Local Similarity 100.0%; Pred. No. 2.4e-24; Indels 0; Gaps 0;

Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVGVREKSDPHIKLQLQAEERGVSIKGV 45

DB 74 YCKNGFFLRHPDGRVGVREKSDPHIKLQLQAEERGVSIKGV 118

RESULT 2

07767 PRELIMINARY; PRT; 130 AA.

AC 07767; PRELIMINARY; PRT; 130 AA.

DT 01-NOV-1998 (TRENBLREL. 08, Created)

DT 01-MAR-2003 (TRENBLREL. 23, Last annotation update)

DE Basic fibroblast growth factor (BFGF) (FGF-2) (Heparin-binding growth factor 2) (HBGF-2) (Prostatropin) (Prostatic growth factor) (Fragment).

OS Canis familiaris (Dog).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.

NCBI\_Taxid=9615;

RP SEQUENCE FROM N.A.

RC TISSUE=Adrenal gland.

RA Trocha O.A., Jacobs R.M., Lawrie J.;

RT "The role of bFGF in canine Hemangioendothelioma."

RL Submitted (APR-1998) to the EMBL/GenBank/DBJ databases.

CC FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE CENTRAL NERVOUS SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).

CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO bFGF AND AT LEAST ONE HEPARIN SULFATE (BY SIMILARITY).

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

DR EMBL; AF060562; AAC35912.1; -.

DR HSSP; P09038; 1BFF.

DR InterPro; IPR002348; IL1\_HBGF.

DR Pfam; PF00167; FGF, 1.

DR PRINTS; PR00262; IL1HBGF.

DR PRODOM; PD000831; IL1\_HBGF, 1.

DR SMART; SM00442; FGF, 1.

DR PROSITE; PS00247; HBGF\_FGF, 1.

KW Growth factor; Mitogen; Heparin-binding; Phosphorylation; Developmental protein.

FT NON\_TER 1

FT SITE 21 23

FT BINDING 63 65

FT MOD\_RES 91 94

FT MOD\_RES 48 48

FT NON\_TER 130 130

Q925A3 PRELIMINARY; PRT; 153 AA.

AC Q925A3; PRELIMINARY; PRT; 153 AA.

DT 01-DEC-2001 (TRENBLREL. 19, Created)

DT 01-MAR-2001 (TRENBLREL. 19, Last sequence update)

DE Fibroblast growth factor 2.

OS Mus musculus (Mouse).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

NCBI\_Taxid=10090;

RP SEQUENCE FROM N.A.

RC STRAIN=FVB/N;

RA Dicks R.P., Griep A.E.;

RT "Multiple novel variants of fibroblast growth factor 2 transcripts are expressed in mouse embryos."

RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.

DR EMBL; AY027551; AAK52308.1; -.

DR InterPro; IPR002348; IL1\_HBGF.

DR Pfam; PF00167; FGF, 1.

DR PRINTS; PR00262; IL1HBGF.

DR PRODOM; PD000831; IL1\_HBGF, 1.

DR SMART; SM00442; FGF, 1.

SQ SEQUENCE 153 AA; 17024 MW; AD8163CDBA2FA2FAAB CRC64;

Query Match 99.6%; Score 238; DB 11; Length 153;

Best Local Similarity 97.8%; Pred. No. 2.4e-24; Indels 0; Gaps 0;

Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVGVREKSDPHIKLQLQAEERGVSIKGV 45

DB 32 YCKNGFFLRHPDGRVGVREKSDPHIKLQLQAEERGVSIKGV 76

RESULT 4

060487 PRELIMINARY; PRT; 170 AA.

AC 060487; PRELIMINARY; PRT; 170 AA.

DT 01-NOV-1996 (TRENBLREL. 01, Created)

DT 01-MAY-2000 (TRENBLREL. 13, Last sequence update)

DT 01-MAR-2003 (TRENBLREL. 23, Last annotation update)

DE Fibroblast growth factor 2 (FGF-2) (Fibroblast growth factor, basic) (BFGF) (Heparin-binding growth factor 2) (HBGF-2) (Prostatropin) (Prostatic growth factor) (Fragments).

OS Cavia porcellus (Guinea pig).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.

NCBI\_Taxid=10141;

RP SEQUENCE OF 53-170 FROM N.A.

RC TISSUE=Prostate;

RA Ricciardielli C.;

RT Submitted (JAN-1996) to the EMBL/GenBank/DBJ databases.

RP SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING.

RE MEDLINE=89273588; PubMed=2730645;

RA Sommer A., Moscatelli D., Rifkin D.B.;

RT "An amino-terminally extended and post-translationally modified form of a 25kD basic fibroblast growth factor."

RT Biochem. Biophys. Res. Commun. 160:1267-1274 (1989).

RP PARTIAL SEQUENCE, AND METHYLATION.

RE MEDLINE=91322114; PubMed=113785;

RA Burgess W.H., Blizik J., Mehlman T., Quarto N., Rifkin D.B.;

RT "Direct evidence for methylation of arginine residues in high molecular weight forms of basic fibroblast growth factor."

RT Cell Regul. 2:87-93 (1991).

RP CHARACTERIZATION.

RC TISSUE=Brain;

RP TISSUE=Brain;

RP TISSUE=Brain;

RP TISSUE=Brain;

RP TISSUE=Brain;

RP TISSUE=Brain;

RP TISSUE=Brain;

RP TISSUE=Brain;

RP TISSUE=Brain;

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RP TISSUE=Brain;

RP TISSUE=Brain;

RP TISSUE=Brain;

RP TISSUE=Brain;

RP TISSUE=Brain;

RP TISSUE=Brain;

RESULT 3



RX MEDLINE=87289686; PubMed=3475702;  
 RA Moscatelli D., Joseph-Silverstein J., Manejias R., Rifkin D.B.;  
 RT "Mr 25,000 heparin-binding protein from guinea pig brain is a high  
 molecular weight form of basic fibroblast growth factor.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 84:5778-5782 (1987).  
 CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC  
 CC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC  
 CC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND  
 CC HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR  
 CC MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION,  
 CC PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS  
 CC SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO  
 CC ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).  
 CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST  
 CC ONE HEPARAN SULFATE (BY SIMILARITY).  
 CC -1- ALTERNATIVE PRODUCTS: AT LEAST TWO ISOFORMS, 18 KDA AND 25 KDA  
 CC (SHOWN HERE); MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION  
 CC INITIATION SITES. BOTH FORMS ARE ACTIVE.  
 CC -1- PTM: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLE).  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -1- CAUTION: THIS IS A CONCEPTUAL TRANSLATION; MANY FRAMESHIFTS WERE  
 CC INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE  
 CC SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF  
 CC PARTIAL AMINO-ACID SEQUENCING.  
 CC EMBL, L75974; AAA85394.1; ALT\_FRAME.  
 CC HSSP; P09038; 1BLA.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Heparin-binding; Alternative initiation;  
 KW Methylation; Phosphorylation; Developmental protein.  
 FT NON\_TER 1 1  
 FT NON\_CONS 15 16  
 FT CHAIN <1 170  
 FT CHAIN 22 170  
 FT INIT\_MET 22 22  
 FT DOMAIN 11 14  
 FT NON\_CONS 50 51  
 FT SITE 61 63  
 FT SITE 103 105  
 FT BINDING 131 134  
 FT MOD\_RES 4 4  
 FT MOD\_RES 6 6  
 FT MOD\_RES 8 8  
 FT MOD\_RES 136 136  
 FT MOD\_RES 136 136  
 SQ SEQUENCE 170 AA; 18354 MW; F369DBC7365FE8E CRC64;  
 Query Match 88.7%; Score 212; DB 11; Length 170;  
 Best Local Similarity 95.2%; Pred. No. 9.3e-21;  
 Matches 40; Conservative 2; Mismatches 0; Indels 0; Gaps 0;  
 Oy 4 NCGFFLRHPDGRVGVREKSDPHIKQLQAEERGVSTKGV 45  
 Db 51 NCGFFLRHPDGRVGVREKSDPHIKQLQAEERGVSTKGV 92  
 RESULT 5  
 P79706 PRELIMINARY; PRT; 101 AA.  
 AC P79706;  
 DT 01-MAY-1997 (TREMBLrel. 03, Created)  
 DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Basic FGF (Fragment).  
 OS Cynops pyrrhogaster (Japanese common newt).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Amphibia; Batrachia; Caudata; Salamandroidae; Salamandridae; Cynops.  
 NC NCB1\_Taxid=8330;  
 RN [1]  
 RP SEQUENCE FROM N.A.

RC TISSUE=Embryo;  
 RA Suzuki A.S., Tabata T., Sakaguchi K., Takabatake T., Takeshima K.,  
 RA Kaneda T.;  
 RT "Serial expression of the genes in a mesodermatizing ectoderms of  
 RT early Cynops gastrula.";  
 RL Submitted (NOV-1996) to the EMBL/Genbank/DBJ databases.  
 DR EMBL; D89443; BAA13958.1; -.  
 DR HSSP; P09038; 4FGF.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 FT NON\_TER 1 1  
 FT NON\_CONS 101 101  
 SQ SEQUENCE 101 AA; 11907 MW; 74A16C866C1P457A CRC64;  
 Query Match 84.9%; Score 203; DB 13; Length 101;  
 Best Local Similarity 86.7%; Pred. No. 8.4e-20;  
 Matches 39; Conservative 3; Mismatches 3; Indels 0; Gaps 0;  
 Oy 1 YCKNGFFLRHPDGRVGVREKSDPHIKQLQAEERGVSTKGV 45  
 Db 5 YCKNGFFLRHPDGRVGVREKSDPHIKQLQAEERGVSTKGV 49  
 RESULT 6  
 Q987D8 PRELIMINARY; PRT; 125 AA.  
 ID Q987D8;  
 AC Q987D8;  
 DT 01-JUN-2001 (TREMBLrel. 17, Created)  
 DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Fibroblast growth factor-2 (Fragment).  
 GN FGF-2.  
 GN Cynops pyrrhogaster (Japanese common newt).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Amphibia; Batrachia; Caudata; Salamandroidae; Salamandridae; Cynops.  
 NC NCB1\_Taxid=8330;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Mizuno N., Hayashi T., Kondoh H., Okamoto M.;  
 RT "Cynops fibroblast growth factor-2.";  
 RL Submitted (OCT-2000) to the EMBL/Genbank/DBJ databases.  
 DR EMBL; AB049625; BAB40835.1; -.  
 DR HSSP; P09038; 1BFF.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 FT NON\_TER 1 1  
 SQ SEQUENCE 125 AA; 14244 MW; 5C27FA1DC6E60C13 CRC64;  
 Query Match 84.9%; Score 203; DB 13; Length 125;  
 Best Local Similarity 86.7%; Pred. No. 1.1e-19;  
 Matches 39; Conservative 3; Mismatches 3; Indels 0; Gaps 0;  
 Oy 1 YCKNGFFLRHPDGRVGVREKSDPHIKQLQAEERGVSTKGV 45  
 Db 3 YCKNGFFLRHPDGRVGVREKSDPHIKQLQAEERGVSTKGV 47  
 RESULT 7  
 Q90Y92 PRELIMINARY; PRT; 155 AA.  
 ID Q90Y92;  
 AC Q90Y92;  
 DT 01-DEC-2001 (TREMBLrel. 19, Created)  
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Fibroblast growth factor-2.



FT NON\_TER 111 111  
SQ SEQUENCE 111 AA; 12633 MW; EC0967A5261F5487 CRC64;

Query Match  
Best Local Similarity 74.9%; Score 179; DB 6; Length 111;  
Matches 35; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 11 IHPDGRVDSREKSPDHILQLOAERGVSIKGV 45  
DB 1 IHPDGRVDSREKSPDHILQLOAERGVSIKGV 35

## RESULT 11

Q8QFR9 PRELIMINARY; PRT; 155 AA.

AC Q8QFR9;  
DT 01-JUN-2002 (TREMBLrel. 21, Created)  
DT 01-JUN-2002 (TREMBLrel. 21, Last sequence update)  
DE 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
GN Basic fibroblast growth factor.  
OS Fugu rubripes (Japanese pufferfish) (Takifugu rubripes).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;  
OC Acanthomorphi; Acanthopterygii; Percomorphi; Tetraodontiformes;  
OC Tetraodontidae; Tetraodontidae; Takifugu.  
OX NCBI\_TaxID=31033;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Botcherby M.R.;  
RT "Comparative vertebrate genomic sequence analysis studies based on Fugu rubripes";  
RT Thesis (2001). University College London, London, United Kingdom.  
DR EMBL; AJ426040; CAD19830.1; -;  
DR InterPro; IPR002348; IL1\_HBGF.  
DR Pfam; PF00167; FGF; 1.  
DR ProDom; PD000831; IL1\_HBGF; 1.  
DR SMART; SM00442; FGF; 1.  
DR PROSITE; PS00247; HBGF\_FGF; 1.  
SQ SEQUENCE 155 AA; 17113 MW; AEPRI2BDC78PB8E CRC64;

Query Match  
Best Local Similarity 74.9%; Score 179; DB 13; Length 155;  
Matches 35; Conservative 1; Mismatches 9; Indels 0; Gaps 0;

QY 1 YKNGGFPLRIHPDGRVDSREKSPDHILQLOAERGVSIKGV 45  
DB 33 YKNGGFPLRIHSDGAVDGTREKTDPHILQLOATSVGEVVIKGV 77

## RESULT 12

Q16443 PRELIMINARY; PRT; 114 AA.

AC Q16443;  
DT 01-NOV-1996 (TREMBLrel. 01, Created)  
DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)  
DE 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
GN Basic fibroblast growth factor (Fragment).  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA MEDLINE=92152654; PubMed=1785797;  
RA Flokiewicz R.Z.; Shibata F.; Barankiewicz T.; Baird A.;  
RA Gonzalez A.M.; Flokiewicz E.; Shah N.;  
RT "Basic fibroblast growth factor gene expression.";  
RT Ann. N. Y. Acad. Sci. 638:109-126(1991).  
DR EMBL; S81809; AAB21432.2; -;  
DR HSSP; P09038; 1BFF.  
DR InterPro; IPR002348; IL1\_HBGF.  
DR Pfam; PF00167; FGF; 1.

DR ProDom; PD000831; IL1\_HBGF; 1.  
FT NON\_TER 114 114  
SQ SEQUENCE 114 AA; 11670 MW; 8BDC4A9C774D61AA CRC64;

Query Match  
Best Local Similarity 65.3%; Score 156; DB 4; Length 114;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YKNGGFPLRIHPDGRVDSREKSPDH 27  
DB 88 YKNGGFPLRIHPDGRVDSREKSPDH 114

## RESULT 13

O00527 PRELIMINARY; PRT; 114 AA.

AC O00527;  
DT 01-JAN-1998 (TREMBLrel. 05, Created)  
DT 01-JAN-1999 (TREMBLrel. 09, Last sequence update)  
DE 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
GN Basic fibroblast growth factor (Fragment).  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Handeuchung K.; Glaeser C.;  
RT "Polymorphism in the 5' untranslated region of the FGF-2 gene: C to T transition (79 bp upstream of the first CTG codon).";  
RT Submitted (MAY-1997) to the EMBL/Genbank/DBJ databases.  
RN [2]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Blood;  
RA Handeuchung K.; Glaeser C.;  
RT "Mutations in the 5' untranslated region of the FGF-2 gene: transition G to A on position 19 and transversion G to C on position 97.";  
RT Submitted (NOV-1999) to the EMBL/Genbank/DBJ databases.  
DR EMBL; Y13468; CA473868.1; -;  
DR EMBL; AJ250952; CAB61690.1; -;  
DR HSSP; P09038; 1BFF.  
DR InterPro; IPR002348; IL1\_HBGF.  
DR Pfam; PF00167; FGF; 1.  
DR ProDom; PD000831; IL1\_HBGF; 1.  
FT NON\_TER 114 114  
SQ SEQUENCE 114 AA; 11688 MW; 9BDC6381C1960CID CRC64;

Query Match  
Best Local Similarity 65.3%; Score 156; DB 4; Length 114;  
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YKNGGFPLRIHPDGRVDSREKSPDH 27  
DB 88 YKNGGFPLRIHPDGRVDSREKSPDH 114

## RESULT 14

O8SP12 PRELIMINARY; PRT; 62 AA.

AC O8SP12;  
DT 01-JUN-2002 (TREMBLrel. 21, Created)  
DT 01-JUN-2002 (TREMBLrel. 21, Last sequence update)  
DE 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
GN Fibrinogen growth factor 1 (Fragment).  
OS Equus caballus (Horse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Perissodactyla; Equidae; Equus.  
OX NCBI\_TaxID=9796;  
RN [1]

RP SEQUENCE FROM N.A.  
 RC TISSUE=Endometrium;  
 RA Welter H., Bollwein H., Einspanier R.;  
 RT "Expression of horse endometrium.";  
 RL Submitted (MAR-2002) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AJ439890; CAD29181.1; -  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR ProDom; PD000831; IL1\_HBGF; 1.  
 FT NON\_TER 1  
 FT NON\_TER 1  
 SQ SEQUENCE 62 AA; 6851 MW; CA427E3D1D7934E0 CRC64;

Query Match 61.9%; Score 148; DB 6; Length 62;  
 Best Local Similarity 67.4%; Pred. No. 14e-12;  
 Matches 29; Conservative 3; Mismatches 11; Indels 0; Gaps 0;

Qy 1 YCKNGFPLRIHPDGRVDGVRKSDPHIKQLQAEERGVSIX 43  
 Db 11 YCSNGHFLRIIPDGTVDGTRDRSDQHILQLSAESVGEVYIX 53

## RESULT 15

ID Q9N1S8 PRELIMINARY; PRT; 106 AA.  
 AC Q9N1S8;  
 DT 01-OCT-2000 (TrEMBLrel. 15, Created)  
 DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)  
 DT 01-MAR-2003 (TrEMBLrel. 23, Last annotation update)  
 DE Acidic fibroblast growth factor (Fragment).  
 GN AFGF.  
 OS Capreolus capreolus (Roe deer).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervidae;  
 OC Cervidae; Odocoileinae; Capreolus.  
 OX NCBI\_TaxID=9858;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Testis;  
 RX MEDLINE=20532861; PubMed=11078867;  
 RA Wagener A., Biotner S., Goritz F., Fickel J.;  
 RT "Detection of growth factors in the testis of roe deer (Capreolus  
 RT capreolus).";  
 RL Anim. Reprod. Sci. 64:65-75(2000).  
 DR EMBL; AF152586; AAF73225.1; -  
 DR HSSP; P05230; ZARG.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; IL1\_HBGF; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 FT NON\_TER 1  
 FT NON\_TER 1  
 SQ SEQUENCE 106 AA; 11931 MW; 2EECC9C1D749A5023 CRC64;

Query Match 58.6%; Score 140; DB 6; Length 106;  
 Best Local Similarity 64.3%; Pred. No. 3.2e-11;  
 Matches 27; Conservative 5; Mismatches 10; Indels 0; Gaps 0;

Qy 2 CKNGGFPLRIHPDGRVDGVRKSDPHIKQLQAEERGVSIX 43  
 Db 1 CRNGHFLRIIPDGTVDGTRDRSDQHILQLSAESVGEVYIX 42

Search completed: January 30, 2004, 11:44:37  
 Job time : 47.6154 secs

GenCore version 5.1.6  
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OW protein - protein search, using sw model

Run on: January 30, 2004, 11:27:08 ; Search time 17.8 Seconds  
(without alignments)  
115.924 Million cell updates/sec

Title: US-09-266-543-3  
Perfect score: 78  
Sequence: 1 CRTKPEKCDKPRR 13

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1107863 seqs, 158726573 residues  
Total number of hits satisfying chosen parameters: 1107863

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

A: Geneseq\_19Jun03: \*  
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24: /SIDSI/gcgdata/geneseq/geneeqp-emb1/AA2003.DAT: \*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	78	100.0	13	21	AA18544
2	69	88.5	20	21	AA18545
3	69	88.5	146	13	AA22348
4	69	88.5	146	13	AA27354
5	69	88.5	146	19	AAW5340
6	69	88.5	146	21	AAW57029
7	69	88.5	146	22	AAW37505
8	53	67.9	12	20	AAW23944
9	53	67.9	105	21	AAW53387

10	53	67.9	121	12	AA11385
11	53	67.9	121	14	AA42607
12	53	67.9	121	20	AA23943
13	53	67.9	121	20	AAW08278
14	53	67.9	121	22	AAW5428
15	53	67.9	121	24	AAW3329
16	53	67.9	146	20	AAW33438
17	53	67.9	147	16	AAW91075
18	53	67.9	147	17	AAW94001
19	53	67.9	147	19	AAW62524
20	53	67.9	147	21	AAW90402
21	53	67.9	147	21	AAW69412
22	53	67.9	147	21	AAW83033
23	53	67.9	147	22	AAW98080
24	53	67.9	147	22	AAW50427
25	53	67.9	147	22	AAW50431
26	53	67.9	147	23	AAW76299
27	53	67.9	148	17	AAW94031
28	53	67.9	148	17	AAW94032
29	53	67.9	212	24	AAW33398
30	53	67.9	222	24	AAW33397
31	53	67.9	339	24	AAW32402
32	53	67.9	367	24	AAW32400
33	53	67.9	368	24	AAW32396
34	53	67.9	371	24	AAW32399
35	53	67.9	377	17	AAW00586
36	53	67.9	377	24	AAW32408
37	53	67.9	381	24	AAW32407
38	53	67.9	384	17	AAW94071
39	53	67.9	399	17	AAW00587
40	53	67.9	472	24	AAW32404
41	53	67.9	500	17	AAW00589
42	53	67.9	506	17	AAW00588
43	53	67.9	512	17	AAW00590
44	53	67.9	514	17	AAW94073
45	53	67.9	524	17	AAW00594

#### ALIGNMENTS

RESULT 1  
AA18544  
AA18544 standard; peptide; 13 AA.

15-JAN-2001 (first entry)

Immunogenic peptide fragment derived from FGF and/or VEGF.

Immunogenic peptide; fibroblast growth factor; FGF; VEGF; cancer;  
vascular endothelial growth factor; hyperproliferative disorder;  
haemangioma; solid tumour; blood borne tumour; leukaemia; metastasis;  
telangiectasia; psoriasis; scleroderma; pyogenic granuloma;  
myocardial angiogenesis; Crohn's disease; plaque neovascularisation;  
arteriovenous malformation; corneal disease; rubecosis;  
neovascular glaucoma; diabetic retinopathy; retrolental fibroplasia;  
arthritis; diabetic neovascularisation; macular degeneration;  
wound healing; peptic ulcer; Helicobacter related disease; fracture;  
keloid; vasculogenesis; hematopoiesis; ovulation; menstruation;  
placentation; cat scratch fever.

Unidentified.

WO200053219-A2.

14-SEP-2000.

10-MAR-2000; 2000WO-US06320.

11-MAR-1999; 99US-0266543.

XX

PA (ENTR-) ENTREMED INC.  
 XX Holaday JW, Ruiz A, Madsen J;  
 XX WPI; 2000-594263/56.  
 DR  
 XX An immunogenic composition useful for treating cancer or  
 PT hyperproliferative disorders comprises an immunogenic peptide fragment  
 PT of fibroblast growth factor and/or vascular endothelial growth factor -  
 XX  
 XX Claim 13; Page 28; 95pp; English.  
 XX AAB18542-51 represent immunogenic peptide fragments of fibroblast  
 CC growth factor (FGF) and/or vascular endothelial growth factor (VEGF).  
 CC The peptides are used to produce immunogenic compositions. The  
 CC immunogenic composition is used for treating cancer or  
 CC hyperproliferative disorders, especially haemangioma, solid tumours,  
 CC blood borne tumours, leukaemia, metastasis, telangiectasia, psoriasis,  
 CC scleroderma, pyogenic granuloma, myocardial angiogenesis, Crohn's  
 CC disease, plaque neovascularisation, arteriovenous malformations,  
 CC corneal diseases, rubecosis, neovascular glaucoma, diabetic retinopathy,  
 CC retrolental fibroplasia, arthritis, diabetic neovascularisation, macular  
 CC degeneration, wound healing, peptic ulcer, Helicobacter related  
 CC diseases, fractures, keloids, vasculogenesis, hematopoiesis, ovulation,  
 CC menstruation, placentalation and cat scratch fever.  
 CC  
 SQ Sequence 13 AA;  
 Query Match 100.0%; Score 78; DB 21; Length 13;  
 Best Local Similarity 100.0%; Pred. No. 7.8e-05;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CRTREKCDKPRR 13  
 Db 1 CRTREKCDKPRR 13  
 RESULT 2  
 AAB18545  
 ID AAB18545 standard; peptide; 20 AA.  
 XX  
 AC AAB18545;  
 XX  
 DT 15-JAN-2001 (first entry)  
 DE  
 XX Immunogenic peptide fragment derived from FGF and/or VEGF.  
 XX  
 XX Immunogenic peptide; fibroblast growth factor; FGF; VEGF; cancer;  
 KW vascular endothelial growth factor; hyperproliferative disorder;  
 KW haemangioma; solid tumour; blood borne tumour; leukaemia; metastasis;  
 KW telangiectasia; psoriasis; scleroderma; pyogenic granuloma;  
 KW myocardial angiogenesis; Crohn's disease; plaque neovascularisation;  
 KW arteriovenous malformation; corneal disease; rubecosis;  
 KW neovascular glaucoma; diabetic retinopathy; retrolental fibroplasia;  
 KW arthritis; diabetic neovascularisation; macular degeneration;  
 KW wound healing; peptic ulcer; Helicobacter related disease; fracture;  
 KW keloid; vasculogenesis; hematopoiesis; ovulation; menstruation;  
 KW placentalation; cat scratch fever.  
 KW  
 KM Unidentified.  
 XX  
 OS  
 XX WO200053219-A2.  
 PN  
 XX 14-SEP-2000.  
 PD  
 XX 10-MAR-2000; 2000WO-US06320.  
 PF  
 XX 11-MAR-1999; 99US-0266543.  
 PR  
 XX (ENTR-) ENTREMED INC.  
 PA  
 XX Holaday JW, Ruiz A, Madsen J;  
 PI  
 XX

DR WPI; 2000-594263/56.  
 XX  
 XX An immunogenic composition useful for treating cancer or  
 PT hyperproliferative disorders comprises an immunogenic peptide fragment  
 PT of fibroblast growth factor and/or vascular endothelial growth factor -  
 XX  
 XX Claim 13; Page 28; 95pp; English.  
 XX AAB18542-51 represent immunogenic peptide fragments of fibroblast  
 CC growth factor (FGF) and/or vascular endothelial growth factor (VEGF).  
 CC The peptides are used to produce immunogenic compositions. The  
 CC immunogenic composition is used for treating cancer or  
 CC hyperproliferative disorders, especially haemangioma, solid tumours,  
 CC blood borne tumours, leukaemia, metastasis, telangiectasia, psoriasis,  
 CC scleroderma, pyogenic granuloma, myocardial angiogenesis, Crohn's  
 CC disease, plaque neovascularisation, arteriovenous malformations,  
 CC corneal diseases, rubecosis, neovascular glaucoma, diabetic retinopathy,  
 CC retrolental fibroplasia, arthritis, diabetic neovascularisation, macular  
 CC degeneration, wound healing, peptic ulcer, Helicobacter related  
 CC diseases, fractures, keloids, vasculogenesis, hematopoiesis, ovulation,  
 CC menstruation, placentalation and cat scratch fever.  
 CC  
 SQ Sequence 20 AA;  
 Query Match 88.5%; Score 69; DB 21; Length 20;  
 Best Local Similarity 100.0%; Pred. No. 0.0023;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 2 RTREKCDKPRR 13  
 Db 9 RTREKCDKPRR 20  
 RESULT 3  
 AAR22348  
 ID AAR22348 standard; Protein; 146 AA.  
 XX  
 AC AAR22348;  
 XX  
 DT 29-JUL-1992 (first entry)  
 DE  
 XX Alternative form of VEGF mature A-subunit with 120 amino acids.  
 XX  
 XX Rat glioma cell; GS-9L; conditioned medium; heterodimer; VEGF-II;  
 KW homodimer; mitogenesis; vascular repair; blood vessel implant;  
 KW polymerase chain reaction; alternative splicing.  
 KW  
 KM Rattus.  
 XX  
 OS  
 XX Key Location/Qualifiers  
 FT Peptide 1..26  
 FT Protein /label= signal  
 FT /label= VEGF A-subunit  
 FT /note= "120 amino acids long"  
 XX  
 PN EP476983-A.  
 XX  
 XX 25-MAR-1992.  
 PD  
 XX 18-SEP-1991; 91EP-0308489.  
 PF  
 XX 21-SEP-1990; 90US-0586640.  
 PR  
 XX 21-SEP-1990; 90US-0586638.  
 XX  
 XX (MERI ) MERCK & CO INC.  
 PA  
 XX Bayne ML, Conn GL, Thomas KA;  
 PI  
 XX WPI; 1992-098641/13.  
 DR  
 XX N-PSDB; AAQ23039.  
 XX  
 PT Vascular endothelial cell growth factor II - used as coating for

PT artificial blood vessels or to promote tissue repair  
 XX  
 PS Example 9; Page 14 and Fig 4; 38pp; English.  
 XX  
 CC Multiple cDNAs encoding alternative forms of the VEGF A-subunit  
 CC were amplified using PCR primers as in AAQ23049 and AAQ23050. Three  
 CC sets of clones were identified. Clone #12 encoded the 164 amino acid  
 CC secreted form of VEGF A-subunit (see AAR22347). Clone #14 has a 135 bp  
 CC deletion and thus encodes a 120 amino acid form and Clone #16 has a  
 CC 72bp insertion and encodes a 188 amino acid mature protein (AAR22351).  
 CC The deleted region lies between the second base of the Aen140 codon  
 CC and the third base of the Arg184 codon. The 120 amino acid mature  
 CC protein has Aen140 converted to Lys140.  
 CC See also AAQ23038-Q23059.  
 CC  
 SQ Sequence 146 AA;  
 Query Match 88.5%; Score 69; DB 13; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 0.014;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 2 RTKPEKCDKPRR 13  
 DB 135 RTKPEKCDKPRR 146  
 RESULT 4  
 AAR27354  
 ID AAR27354 standard; Protein; 146 AA.  
 XX  
 AC AAR27354;  
 XX  
 DT 25-MAR-2003 (updated)  
 DT 25-FEB-1993 (first entry)  
 XX  
 DE Sequence of vascular endothelial cell growth factor VEGF A  
 DE 146 amino acid residue subunit.  
 XX  
 KW Vascular development; mitogen; blood vessel;  
 KW vascular endothelial growth factor; neovascularisation.  
 KM  
 OS Rattus.  
 XX  
 PN EP506477-A1.  
 XX  
 PD 30-SEP-1992.  
 XX  
 PF 27-MAR-1992; 92EP-0302750.  
 XX  
 PR 28-MAR-1991; 91US-0676436.  
 XX  
 PA (MERI ) MERCK & CO INC.  
 XX  
 PI Bayne ML, Thomas KA;  
 XX  
 DR WPI: 1992-325745/40.  
 DR N-PSDB; AAQ28953.  
 XX  
 PT Vascular endothelial cell growth factor sub-units - which stimulate  
 PT vascular endothelial cell growth, used for inducing tissue repair  
 PT and growth.  
 PS  
 PS Disclosure; Fig 4; 61pp; English.  
 XX  
 CC The full length coding region of the A subunit or monomer of VEGF  
 CC is determined from three sets of overlapping cDNA clones. Degenerate  
 CC oligo. primers based on the amino acid sequences  
 CC Phe-Met-Asp-Val-Tyr-Gln from polypeptide 142 (residues 42-47) and  
 CC Cys-Iys-Asn-Thr-Asp from polypeptide 738 (residues 164-168) were used  
 CC to PCR amplify the central region of the cDNA for VEGF A chain.  
 CC A single band migrating at 420 bp was gel purified, digested with SalI,  
 CC ligated into pGEM3Zf(+) and sequenced. The nucleotide sequence  
 CC obtained (p4238) was used to design antisense and sense PCR primers

CC to amplify the 5' and 3' ends of the cDNA. These 5' and 3' clones  
 CC are denoted p5-15 and pW3, respectively. In addition to the cDNA  
 CC coding the 164 amino acid secreted form identified by protein  
 CC sequencing, two alternatively spliced cDNAs encoding a 146 amino acid  
 CC and a 214 amino acid forms are cloned and sequenced.  
 CC (Updated on 25-MAR-2003 to correct PN field.)  
 CC (Updated on 25-MAR-2003 to correct PD field.)  
 XX  
 SQ Sequence 146 AA;  
 Query Match 88.5%; Score 69; DB 13; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 0.014;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 2 RTKPEKCDKPRR 13  
 DB 135 RTKPEKCDKPRR 146  
 RESULT 5  
 AAM53640  
 ID AAM53640 standard; Protein; 146 AA.  
 XX  
 AC AAM53640;  
 XX  
 DT 30-JUL-1998 (first entry)  
 DT  
 XX  
 DE Vascular endothelial growth factor II A subunit variant.  
 XX  
 KW Vascular endothelial cell growth factor; VEGF II; rat; glioma cell;  
 KW mitogenesis; blood vessel growth; artificial blood vessel.  
 XX  
 OS Rattus sp.  
 XX  
 PN US5726152-A.  
 XX  
 PD 10-MAR-1998.  
 XX  
 PF 31-AUG-1994; 94US-0299185.  
 XX  
 PR 31-AUG-1994; 94US-0299185.  
 PR 21-SEP-1990; 90US-0586638.  
 PR 05-JAN-1993; 93US-0000834.  
 XX  
 PA (MERI ) MERCK & CO INC.  
 XX  
 PI Bayne ML, Conn GL, Thomas KA;  
 XX  
 DR WPI: 1998-206007/18.  
 DR  
 XX  
 PT Vascular endothelial growth factor proteins - having specified A and  
 PT B sub-units  
 XX  
 PS Claim 1; Page -; 46pp; English.  
 XX  
 CC The present sequence represents a rat vascular endothelial growth factor  
 CC II (VEGF II) A subunit variant with a conversion of Aen 140 to Lys 140,  
 CC and the deletion of His 141 to Arg 184 from the wild-type given in  
 CC AAM53639. The present invention describes: (1) a mammalian VEGF II  
 CC protein comprising an A subunit from AAM53639, AAM53640 or AAM53641, and  
 CC a B subunit from AAM53638, AAM53639 or the first 115-135 amino acids of  
 CC AAM53638; and (2) a mammalian VEGF comprising a heterodimer or homodimer  
 CC of B subunits. The growth factor is used for promoting vascular  
 CC development and repair and for promoting tissue repair.  
 CC N.B. The present sequence is not given in the specification but is  
 CC derived from Fig 5 as stated in the claim.  
 XX  
 SQ Sequence 146 AA;  
 Query Match 88.5%; Score 69; DB 13; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 0.014;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 RTKEKCDKPRR 13  
 |||||  
 XX 135 RTKEKCDKPRR 146

RESULT 6  
 ID AAY57029 standard; Protein; 146 AA.  
 XX AAY57029;  
 XX

DT 15-FEB-2000 (first entry)

DE VEGFA 146 amino acid residue subunit sequence.

XX VEGF; vascular endothelial growth factor; A subunit; tissue growth;  
 KM vascular development; artificial blood vessel; repair; human.

XX Homo sapiens.

OS US5994300-A.

PD 30-NOV-1999.

PF 20-SEP-1993; 93US-0124259.

PR 28-MAR-1991; 91US-0676436.

PA (MERI ) MERCK & CO INC.

PI Thomas KA, Bayne ML;

XX WPI; 2000-038268/03.

DR N-PSDB; AA239827.

XX Purified and isolated vascular endothelial cell growth factor C subunit  
 PT for the induction of tissue repair or growth -

XX Disclosure; Fig 3; 58pp; English.

CC This is the amino acid sequence of a 146 amino acid residue A subunit of  
 CC vascular endothelial cell growth factor (VEGF). The invention relates to  
 CC a purified and isolated VEGF C subunit amino acid sequence AAY57025.  
 CC VEGF exists in various microheterogeneous forms, and is useful for the  
 CC promotion of vascular development and repair. The invention also relates  
 CC to human VEGF heterodimers AC or BC and homodimer CC, where A, B and C  
 CC are subunit amino acid sequences. The VEGF AC, BC or CC amino acid  
 CC sequences can be used in a tissue repairing pharmaceutical composition.  
 CC The novel growth factors are useful for the production or coverage of  
 CC artificial blood vessels with vascular endothelial cell. They are also  
 CC useful for the induction of tissue growth and repair.

XX Sequence 146 AA;

Query Match 88.5%; Score 69; DB 21; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 0.014;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 RTKEKCDKPRR 13  
 |||||  
 DB 135 RTKEKCDKPRR 146

RESULT 7  
 ID AAB37505 standard; Protein; 146 AA.

XX AAB37505;

DT 26-FEB-2001 (first entry)

DE Rat VEGF subunit A SEQ ID NO: 33.

KM Vascular endothelial growth factor; VEGF C subunit; cell division;  
 KM artificial blood vessel; tissue growth; tissue repair.

OS Rattus sp.

PN US6140073-A.

PD 31-OCT-2000.

PF 16-JAN-1996; 96US-0586039.

PR 20-SEP-1993; 93US-0124259.

PR 28-MAR-1991; 91US-0676436.

PA (MERI ) MERCK & CO INC.

PI Thomas KA, Bayne ML;

XX WPI; 2001-014858/02.

DR N-PSDB; AAC83512.

XX Human vascular endothelial cell growth factor (VEGF) C subunit DNA and  
 PT protein, useful for promoting vascular development and repair, and for  
 PT promoting tissue repair, especially for treating wounds in mammals -  
 XX Example 9; Fig 4; 58pp; English.

CC The present invention is concerned with the human vascular endothelial  
 CC growth factor (VEGF) C subunit. VEGF is a vascular endothelial cell  
 CC mitogen and can be used to promote vascular development and repair. The C  
 CC subunit may exist as a homodimer or a heterodimer with the VEGF A or B  
 CC subunit. VEGF can be used in the treatment of wounds of mammals, to cover  
 CC production of artificial blood vessels with vascular endothelial cells, in the  
 CC growth.

XX Sequence 146 AA;

Query Match 88.5%; Score 69; DB 22; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 0.014;  
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 RTKEKCDKPRR 13  
 |||||  
 DB 135 RTKEKCDKPRR 146

RESULT 8  
 ID AAY23944 standard; peptide; 12 AA.

XX AAY23944;

DT 21-SEP-1999 (first entry)

DE Peptide derived from vascular endothelial growth factor (VEGF) 121.

KM Vascular endothelial growth factor; VEGF; VEGF 121; monoclonal antibody.

XX Homo sapiens.

PN JP11178593-A.

PD 06-JUL-1999.

PF 24-DEC-1997; 97JP-0365972.

PR 24-DEC-1997; 97JP-0365972.

PA (FURE ) FUJIREBIO KK.

DR WPI; 1999-437318/37.



PT	New VEGF121-specific monoclonal antibody - useful for measuring levels of VEGF121
PS	Example 1; Page 5; 6pp; Japanese.
CC	The present sequence is derived from vascular endothelial growth factor (VEGF) 121. The specification describes a monoclonal antibody which is specific to VEGF 121, and a hybridoma producing this antibody. The antibody is used in a method for measuring the amount of VEGF 121 present in a sample.
XX	
SO	Sequence 12 AA;
QY	Query Match 67.9%; Score 53; DB 20; Length 12; Best Local Similarity 75.0%; Fred. No. 0.3; Matches 9; Conservatively 1; Mismatches 2; Indels 0; Gaps 0;
Db	2 RTKPECKDKPRR 13   :       1 RAHQEKCDKPRR 12
RESULT 9	
AAB53387	ID AAB53387 standard; Protein; 105 AA.
AC	AAB53387;
DT	09-MAR-2001 (first entry)
DE	Human colon cancer antigen protein sequence SEQ ID NO:927.
XX	Human; colon cancer; colon cancer antigen; diagnosis; detection; identification; cytostatic; cardioactive; neuroprotective; vulnary; immunomodulatory; muscular; gynaecological; gastrointestinal; nephrotropic; antiinfective; antibacterial; gene therapy; wound; neural disorder; immune system disorder; muscular disorder; reproductive disorder; gastrointestinal disorder; renal disorder; infectious disease; cardiovascular disorder.
OS	Homo sapiens.
XX	WO200055351-A1.
PD	21-SEP-2000.
PF	08-MAR-2000; 2000WO-US05883.
PR	12-MAR-1999; 99US-0124270.
PA	(HUMA-) HUMAN GENOME SCI INC.
PI	Rosen CA, Ruben SM;
DR	WPI; 2000-587534/55. N-PSDB; AAC98144.
PT	Colon cancer associated gene sequences, referred to as colon cancer antigens, useful for the treatment, prevention, and diagnosis of colon disorders such as colon cancer -
PS	Claim 11; Page 1486; 2104pp; English.
CC	AAC97991 to AAC98763 encode the human colon cancer associated proteins, called human colon cancer antigens, given in AAB53234 to AAB54006. The human colon cancer antigen can have cyrostatic, cardioactive, muscular; neuroprotective, immunomodulatory, gynaecological, gastrointestinal, vulnary, nephrotropic, antiinfective and antibacterial activities, and can be used in gene therapy. The colon cancer antigen polynucleotides, proteins and antibodies to the proteins are useful for the prevention, treatment and diagnosis of colon disorders, such as colon cancer. The polynucleotides may be used in diagnostics and research, such as for chromosome identification, and as hybridisation probes. The proteins

CC may also be used to prevent diseases such as neural disorders, immune  
CC system disorders, muscular disorders, reproductive disorders,  
CC gastrointestinal disorders, wounds, renal disorders, infectious  
CC diseases, and cardiovascular disorders. AAC98764 to AAC98772 and  
CC AAB54007 represent sequences used in the exemplification of the present  
XX invention.

SQ Sequence 105 AA;

Query Match 67.9%; Score 53; DB 21; Length 105;  
Best Local Similarity 75.0%; Pred. No. 2.1;  
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 2 RTKEKCDKPRR 13  
| : |||||  
Db 94 RAROEKCDKPRR 105

RESULT 10

AAR11385  
ID AAR11385 standard; Protein; 121 AA.  
XX  
AC AAR11385;  
XX  
DT 25-MAR-2003 (updated)  
DT 08-MAY-1991 (first entry)

XX Human vascular endothelial cell growth factor 121.  
DE  
XX  
KM Bovine vascular endothelial cell growth factor; angiogenesis;  
KW wound healing; hVEGF; PDGF.  
XX  
OS Bos taurus.  
SN WO9102058-A.  
PN  
ED 21-FEB-1991.  
PD  
PP 27-JUL-1990; 90WO-US04227.  
XP  
PR 14-DEC-1989; 89US-0450883.  
PR 27-JUL-1989; 89US-0387545.  
XA  
PA (CALD ) CALIFORNIA BIOTECHNOLOGY INC.  
XX  
XX Tischer ER, Abraham, Fiddes JC, Mitchell RL;  
XX WPI; 1991-073534/10.  
DR N-PSDB; AAQ11099.  
XX  
PT DNA encoding vascular endothelial cell growth factor - used for  
PT producing the factor for angiogenesis and re-endothelialisation  
PT in wound healing  
XX  
PS Disclosure; Fig 7(1-2); 94pp; English.  
XX

The two forms of VEGF (AAQ10797 and AAQ10917) which arise through  
different message splicing, have different properties. In partic.  
hVEGFR121 does not bind to heparin leaving more of the protein free to  
bind to VEGF receptor and increase the half-life and distribution of  
the protein in circulation, whereas hBEGFR165 binds heparin strongly.  
The product can be used for angiogenesis and re-endothelialisation  
of inner vascular surfaces in wound healing, e.g. treatment of full-  
thickness wounds such as dermal ulcers, venous ulcers and diabetic  
ulcers, burns, in surgery, in balloon angioplasty and for the in  
vitro culturing of endothelial cells. Hybrid growth factors of PDGF  
and VEGF can exhibit a mitogenic profile between each factor and  
can be used for wound healing or as inhibitors of angiogenesis for  
e.g. preventing the growth of tumours.  
VEGF analogues in which CYS residues are substd. are more stable.  
See also AAQ10791-93; AAQ10796-97; AAQ10806-08 and AAQ11099.  
(Updated on 25-MAR-2003 to correct PA field.)

SQ Sequence 121 AA;  
 Query Match 67.9%; Score 53; DB 12; Length 121;  
 Best Local Similarity 75.0%; Pred. No. 2.4;  
 Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 RTKPEKCDKPRR 13  
 | : |||||  
 DB 110 RARQEKCDKPRR 121

RESULT 11  
 AAR42607  
 ID AAR42607 standard; Protein; 121 AA.  
 XX  
 AC AAR42607;  
 XX  
 DT 25-MAR-2003 (updated)  
 DT 28-OCT-1993 (first entry)  
 XX  
 DE Human VEGF-121.  
 XX  
 KM Angiogenesis; wound healing; mitogen; vascular endothelial cells;  
 KM Vascular Endothelial Cell Growth Factor; hVEGF-165; hVEGF-121.  
 XX  
 OS Homo sapiens.  
 XX  
 PH Key Location/Qualifiers  
 FT Misc-difference /note= "inserted amino acid relative to hVEGF"  
 FT Misc-difference 115  
 FT /note= "Lys 115 of hVEGF-121 is replaced by 44  
 amino acids encoded by an alternatively  
 spliced exon in hVEGF-165 (see AAR38921)."  
 XX  
 FN US5219739-A.  
 XX  
 PD 15-JUN-1993.  
 XX  
 PF 27-JUL-1990; 90US-0559041.  
 XX  
 PR 27-JUL-1989; 89US-0387545.  
 PR 14-DEC-1989; 89US-0450883.  
 PR 27-JUL-1990; 90US-0559041.  
 XX  
 PA (SCIO-) SCIOS NOVA INC.  
 XX  
 PI Abraham JA, Fiddes JC, Mitchell RL, Tischer EG;  
 XX  
 DR WPI; 1993-205302/25.  
 DR N-PSDB; AAQ49601.  
 XX  
 PT Isolated DNA sequences, expression vectors and transformant cells  
 PT - used for large scale prodn. of vascular endothelial cell growth  
 PT factor, for treating wounds in which neo-vascularisation is  
 PT required  
 XX  
 PS Claim 3; Fig 7; 40pp; English.  
 XX  
 CC The sequence of AAQ4260 contains an open reading frame corresponding  
 CC to the 165 amino acid human vascular endothelial cell growth  
 CC factor (hVEGF-165, see AAR38921). Alternative splicing of the  
 CC sequence gives a shorter coding sequence which encodes the 121  
 CC amino acid hVEGF (see AAR42607). The full-length coding sequences can  
 CC be generated using PCR with human foetal vascular smooth muscle  
 CC poly-A+ RNA as template.  
 CC (Updated on 25-MAR-2003 to correct PF field.)  
 CC  
 SQ Sequence 121 AA;

Query Match 67.9%; Score 53; DB 14; Length 121;  
 Best Local Similarity 75.0%; Pred. No. 2.4;  
 Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 RTKPEKCDKPRR 13  
 | : |||||  
 DB 110 RARQEKCDKPRR 121

RESULT 12  
 AAY23943  
 ID AAY23943 standard; peptide; 121 AA.  
 XX  
 AC AAY23943;  
 XX  
 DT 21-SEP-1999 (first entry)  
 DE Amino acid sequence of vascular endothelial growth factor (VEGF) 121.  
 XX  
 KM Vascular endothelial growth factor; VEGF; VEGF 121; monoclonal antibody.  
 XX  
 OS Homo sapiens.  
 XX  
 PN JP11178593-A.  
 XX  
 PD 06-JUL-1999.  
 XX  
 PF 24-DEC-1997; 97JP-0365972.  
 XX  
 PR 24-DEC-1997; 97JP-0365972.  
 XX  
 PA (FURE) FUJIREBIO KK.  
 XX  
 DR WPI; 1999-437318/37.  
 XX  
 PT New VEGF121-specific monoclonal antibody - useful for measuring  
 PT levels of VEGF121  
 XX  
 PS Disclosure; Page 5; 6pp; Japanese.  
 XX  
 CC The present sequence represents vascular endothelial growth factor  
 CC (VEGF) 121. The specification describes a monoclonal antibody which  
 CC is specific to VEGF 121, and a hybridoma producing this antibody. The  
 CC antibody is used in a method for measuring the amount of VEGF 121  
 CC present in a sample.  
 XX  
 SQ Sequence 121 AA;

Query Match 67.9%; Score 53; DB 20; Length 121;  
 Best Local Similarity 75.0%; Pred. No. 2.4;  
 Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 RTKPEKCDKPRR 13  
 | : |||||  
 DB 110 RARQEKCDKPRR 121

RESULT 13  
 AAY08278  
 ID AAY08278 standard; Protein; 121 AA.  
 XX  
 AC AAY08278;  
 XX  
 DT 14-JUL-1999 (first entry)  
 DE Human growth factor protein fragment VEGF-A121.  
 XX  
 KM Growth factor; human; dimer; cysteine knot; cellular inclusion body;  
 KM pharmaceutical.  
 XX  
 OS Homo sapiens.  
 XX  
 PN DE19748734-A1.  
 XX  
 PD 06-MAY-1999.  
 XX

PF 05-NOV-1997; 97DE-1048734.  
 XX  
 PR 05-NOV-1997; 97DE-1048734.  
 XX  
 PA (GBPB) GES BIOTECHNOLOGISCHE FORSCHUNG MBH.  
 XX  
 PI Erdmann H, Kaerst U, Mueller C, Rinas U, Welch H;  
 XX  
 DR MPI; 1999-278785/24.  
 XX  
 PT Preparing active growth factor dimers from inclusion bodies in high  
 PT yield  
 PS Claim 14; Page 7; 14pp; German.  
 XX  
 CC This invention describes the novel preparation of biologically active  
 CC dimers of recombinant human growth factors of the cysteine knot family  
 CC starting from cellular inclusion bodies. Such dimers are useful in  
 CC pharmaceutical compositions and the method provides yields of 31-39.7%,  
 CC in examples, compared with about 10% for the conventional method (see  
 CC Biochemistry, 28 (1989) 2956). AAY08278-Y08301 are human growth factor  
 CC protein fragments used in the method of the invention.  
 CC  
 SQ Sequence 121 AA;  
 XX  
 Query Match 67.9%; Score 53; DB 20; Length 121;  
 Best Local Similarity 75.0%; Pred. No. 2.4;  
 Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
 QY 2 RTKPEKCDKPRR 13  
 | : |||||  
 DB 110 RARQEKCDKPRR 121  
 RESULT 14  
 AAB50428  
 ID AAB50428 standard; Protein; 121 AA.  
 XX  
 AC AAB50428;  
 XX  
 DT 13-MAR-2001 (first entry)  
 XX  
 DE Mature human vascular endothelial growth factor polypeptide.  
 XX  
 KW Human; vascular endothelial growth factor; VEGF; VEGF dimer;  
 KW hypotensive; litholytic; nephrotropic; antiarteriosclerotic;  
 KW antiinflammatory; angiogenesis; vascular remodelling; injury; wound;  
 KW peripheral arterial disease; coronary artery disease; hypoxia;  
 KW essential hypertension; microvascular angiopathy; hypercapnia;  
 KW polycystic kidney disease; vascular endothelial cell repair;  
 KW lung disease; kidney disease; inflammatory bowel disease.  
 XX  
 OS Homo sapiens.  
 XX  
 PN WO200071716-A2.  
 XX  
 PD 30-NOV-2000.  
 XX  
 PF 18-MAY-2000; 2000WO-US13636.  
 XX  
 PR 20-MAY-1999; 99US-0135312.  
 PR 20-JAN-2000; 2000US-0177407.  
 XX  
 PA (SCIO-) SCIOS INC.  
 XX  
 PI Jue RA, Schejlenberger U, Stathis PA, Adriaenssens PI, Abraham JA;  
 PI Baldwin PA, Pollitt NS;  
 XX  
 DR MPI; 2001-041064/05.  
 DR N-PSDB; AAC90473.  
 XX  
 PT Vascular endothelial growth factor dimer, useful for treating essential  
 PT hypertension, polycystic kidney diseases, microvascular angiopathy and

PT coronary artery disease, comprising two monomeric subunits -  
 XX  
 PS Claim 1; Fig 1; 61pp; English.  
 XX  
 CC The present sequence encodes a monomer of a vascular endothelial growth  
 CC factor (VEGF) dimer. The dimer comprises a first and a second monomer,  
 CC each comprising at least amino acids 11-116 of a defined 147 amino acid  
 CC sequence, or a sequence having at least 90% identity to the defined  
 CC sequence, and retaining a cysteine at or corresponding to position 116,  
 CC which is disulphide-bonded to an additional extraneous cysteine. The  
 CC VEGF dimer is useful for inducing angiogenesis and vascular remodelling,  
 CC treating peripheral arterial disease, coronary artery disease, essential  
 CC hypertension, microvascular angiopathy, and polycystic kidney disease,  
 CC and repair of vascular endothelial cell layers. It is also useful for  
 CC treating injuries, wounds, hypoxia, hypercapnia, pulmonary dysfunction,  
 CC kidney diseases, diseases arising from disordered transport of solutes  
 CC and fluids across the intestinal epithelium including inflammatory bowel  
 CC disease, and disorders due to accumulation of ascites in the  
 CC peritoneum.  
 XX  
 SQ Sequence 121 AA;  
 XX  
 Query Match 67.9%; Score 53; DB 22; Length 121;  
 Best Local Similarity 75.0%; Pred. No. 2.4;  
 Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
 QY 2 RTKPEKCDKPRR 13  
 | : |||||  
 DB 110 RARQEKCDKPRR 121  
 RESULT 15  
 AAE32329  
 ID AAE32329 standard; Protein; 121 AA.  
 XX  
 AC AAE32329;  
 XX  
 DT 24-MAR-2003 (first entry)  
 XX  
 DE Human vascular endothelial growth factor (VEGF)121.  
 XX  
 KW Vascular endothelial growth factor; VEGF; angiogenesis; wound healing;  
 KW bone growth; osteoporosis; osteoarthritis; bone reconstruction; ulcer;  
 KW lesion; injury; trauma; periodontal condition; protein therapy; human.  
 XX  
 OS Homo sapiens.  
 XX  
 PN WO200283851-A2.  
 XX  
 PD 24-OCT-2002.  
 XX  
 PF 10-APR-2002; 2002WO-US11406.  
 XX  
 PR 10-APR-2001; 2001US-0832355.  
 XX  
 PA (GENV-) GENVEC INC.  
 XX  
 PI Kovacs I, Kessler PD;  
 XX  
 DR MPI; 2003-075536/07.  
 DR N-PSDB; AAD49965.  
 XX  
 PT New fusion protein comprising a non-heparin-binding vascular  
 PT endothelial growth factor (VEGF) peptide portion and a non-VEGF peptide  
 PT portion, useful for promoting angiogenesis and/or bone growth in  
 PT mammals -  
 XX  
 PS Disclosure; Page 118; 191pp; English.  
 XX  
 CC The invention relates to a fusion protein comprising non-heparin binding  
 CC vascular endothelial growth factor (VEGF) peptide portion and a non-VEGF  
 CC peptide portion useful for promoting angiogenesis and/or bone growth in  
 CC mammalian host. The fusion protein is useful for promoting angiogenesis,

CC wound healing and bone growth. Compositions containing bone growth  
 CC promoting fusion protein can be used to treat osteoporosis, rheumatoid  
 CC or osteoarthritis, to improve poor bone healing, to promote implant  
 CC integration and function of artificial joints and to facilitate bone  
 CC reconstruction. They can also be used to treat e.g. ulcers, lesions,  
 CC injuries, burns, trauma, periodontal conditions, lacerations and other  
 CC conditions. The invention is also useful in protein therapy. The present  
 CC sequence is human VEGF121 protein.

XX  
 SQ Sequence 121 AA;

Query Match 67.9%; Score 53; DB 24; Length 121;  
 Best Local Similarity 75.0%; Pred. No. 2.4;  
 Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 2 RTKPEKCDKPRR 13  
 : |||||  
 Db 110 RAROEKCDKPRR 121

Search completed: January 30, 2004, 11:40:06  
 Job time : 18.925 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:35:33 ; Search time 5.53333 Seconds  
(without alignments)  
99.405 Million cell updates/sec

Title: US-09-266-543-3

Perfect score: 78

Sequence: 1 CTKPKCKDKPRR 13

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 328717 seqs, 42310858 residues

Total number of hits satisfying chosen parameters: 328717

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-Processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	69	88.5	146	3	US-08-586-039B-33
2	69	88.5	146	4	US-09-699-769-33
3	53	67.9	121	6	5194596-19
4	53	67.9	121	6	5219739-20
5	53	67.9	147	3	US-08-807-992B-1
6	53	67.9	147	4	US-09-392-932-1
7	53	67.9	147	4	US-08-706-054A-4
8	53	67.9	147	4	US-09-574-708A-2
9	53	67.9	147	4	US-09-313-299-4
10	51.5	66.0	120	6	5194596-9
11	51.5	66.0	120	6	5219739-9
12	48	61.5	147	4	US-09-431-888-3
13	47	60.3	137	4	US-09-037-983C-17
14	44	56.4	168	4	US-09-252-991A-21174
15	44	52.6	704	4	US-09-252-991A-30631
16	40	51.3	12	3	US-08-742-243-70
17	40	51.3	192	4	US-09-252-991A-31607
18	40	51.3	306	4	US-09-252-991A-25699
19	40	51.3	588	1	US-08-391-615-5
20	39	50.0	19	3	US-08-807-992B-7
21	39	50.0	19	3	US-08-807-992B-13
22	39	50.0	19	3	US-08-807-992B-16
23	39	50.0	19	3	US-08-807-992B-30
24	39	50.0	133	4	US-09-252-991A-17914
25	39	50.0	136	4	US-09-037-983C-15
26	39	50.0	164	6	5194596-17
27	39	50.0	164	6	5219739-17

28	39	50.0	164	6	5219739-18	Patent No. 5219739
29	39	50.0	165	4	US-08-882-816-3	Sequence 3, Appl
30	39	50.0	165	4	US-08-802-052B-3	Sequence 3, Appl
31	39	50.0	165	6	5194596-18	Patent No. 5194596
32	39	50.0	165	6	5219739-19	Patent No. 5219739
33	39	50.0	182	4	US-09-252-991A-25842	Sequence 25842, A
34	39	50.0	189	1	US-08-469-427A-15	Sequence 15, Appl
35	39	50.0	190	2	US-08-569-063C-20	Sequence 20, Appl
36	39	50.0	190	3	US-08-586-039B-31	Sequence 31, Appl
37	39	50.0	190	4	US-09-699-769-31	Sequence 31, Appl
38	39	50.0	190	6	5332671-3	Patent No. 5332671
39	39	50.0	191	3	US-08-567-200A-2	Sequence 2, Appl
40	39	50.0	191	3	US-08-807-992B-2	Sequence 2, Appl
41	39	50.0	191	3	US-08-691-794-2	Sequence 2, Appl
42	39	50.0	191	3	US-08-795-430-56	Sequence 56, Appl
43	39	50.0	191	4	US-09-392-932-3	Sequence 3, Appl
44	39	50.0	191	4	US-09-355-700-56	Sequence 56, Appl
45	39	50.0	191	4	US-08-882-816-2	Sequence 2, Appl

## ALIGNMENTS

RESULT 1  
US-08-586-039B-33  
; Sequence 33, Application US/08586039B  
; Patent No. 6140073  
GENERAL INFORMATION:  
; APPLICANT: Bayne, Marvin L.  
; APPLICANT: Thomas Jr., Kenneth A.  
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR C  
; TITLE OF INVENTION: SUBUNIT  
; NUMBER OF SEQUENCES: 49  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Metek & Co., Inc.  
; STREET: 126 E. Lincoln Avenue  
; CITY: Rahway  
; STATE: New Jersey  
; COUNTRY: USA  
; ZIP: 07065-0900  
COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Microsoft Word 6  
CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/586,039B  
; FILING DATE: 16-JAN-1996  
CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 08/124,259  
; FILING DATE: 20-SEP-1993  
; APPLICATION NUMBER: 07/676,436  
; FILING DATE: 28-MAR-1991  
ATTORNEY/AGENT INFORMATION:  
; NAME: Hand, J. Mark  
; REGISTRATION NUMBER: 36,545  
; REFERENCE/DOCKET NUMBER: 18361DA  
TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (908) 594-3905  
; TELEFAX: (908) 594-4720  
; INFORMATION FOR SEQ ID NO: 33:  
SEQUENCE CHARACTERISTICS:  
; LENGTH: 146 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
US-08-586-039B-33  
Query Match 88.5%; Score 69; DB 3; Length 146;  
Best Local Similarity 100.0%; Pred. No. 0.0027;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 RTKPEKCDKPRR 13  
| | | | |  
Db 135 RTKPEKCDKPRR 146

## RESULT 2

US-09-699-769-33  
; Sequence 33, Application US/09699769

; Patent No. 6569434

; GENERAL INFORMATION:

; APPLICANT: Bayne, Marvin L.  
; Thomas Jr., Kenneth A.

; TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR

; C SUBUNIT

; NUMBER OF SEQUENCES: 49

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Merck & Co., Inc.

; STREET: 126 E. Lincoln Avenue

; CITY: Rahway

; STATE: New Jersey

; COUNTRY: USA

; ZIP: 07065-0900

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: Microsoft Word 6

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/09/699,769

; FILING DATE: 30-Oct-2000

; CLASSIFICATION: <Unknown>

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 08/586,039

; FILING DATE: 16-JAN-1996

; APPLICATION NUMBER: 08/124,259

; FILING DATE: 20-SEP-1993

; APPLICATION NUMBER: 07/676,436

; FILING DATE: 28-MAR-1991

; ATTORNEY/AGENT INFORMATION:

; NAME: Hand, J. Mark

; REGISTRATION NUMBER: 36,545

; REFERENCE/DOCKET NUMBER: 18361DB

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: (732) 594-3905

; TELEFAX: (732) 594-4720

; INFORMATION FOR SEQ ID NO: 33:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 146 amino acids

; TYPE: amino acid

; STRANDEDNESS: single

; TOPOLOGY: linear

; MOLECULE TYPE: protein

; SEQUENCE DESCRIPTION: SEQ ID NO: 33:

US-09-699-769-33

Query Match 88.5%; Score 69; DB 4; Length 146;

Best Local Similarity 100.0%; Pred. No. 0.0027;

Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 RTKPEKCDKPRR 13  
| | | | |  
Db 135 RTKPEKCDKPRR 146

## RESULT 3

5194596-19

; Patent No. 5194596

; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN

; C.; MITCHELL, RICHARD L.

; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL

; GROWTH FACTOR

; NUMBER OF SEQUENCES: 32

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/07/450,883

; FILING DATE: 14-DEC-1989

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 387,545

; FILING DATE: 27-JUL-1989

; SEQ ID NO: 19:

; LENGTH: 121

5194596-19

Query Match 67.9%; Score 53; DB 6; Length 121;

Best Local Similarity 75.0%; Pred. No. 0.49;

Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 2 RTKPEKCDKPRR 13  
| | | | |  
Db 110 RARQEKCDKPRR 121

## RESULT 4

5219739-20

; Patent No. 5219739

; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,

; JOHN C.; MITCHELL, RICHARD L.

; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESG120 AND

; HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN

; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVESG120 AND HVEGF121

; NUMBER OF SEQUENCES: 40

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/07/559,041

; FILING DATE: 27-JUL-1990

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 450,883

; FILING DATE: 14-DEC-1989

; APPLICATION NUMBER: 387,545

; FILING DATE: 27-JUL-1989

; SEQ ID NO: 20:

; LENGTH: 121

5219739-20

Query Match 67.9%; Score 53; DB 6; Length 121;

Best Local Similarity 75.0%; Pred. No. 0.49;

Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 2 RTKPEKCDKPRR 13  
| | | | |  
Db 110 RARQEKCDKPRR 121

## RESULT 5

US-08-807-992B-1

; Sequence 1, Application US/08807992B

; Patent No. 6022541

; GENERAL INFORMATION:

; APPLICANT: Senger, Donald R

; TITLE OF INVENTION: Immunological preparation for concurrent

; TITLE OF INVENTION: specific binding to spatially exposed regions of vascular

; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood

; NUMBER OF SEQUENCES: 31

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: David Prashker, Esq.

; STREET: P.O. Box 5387

; CITY: Magnolia

; STATE: Massachusetts

; COUNTRY: USA

; ZIP: 01930

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage

; COMPUTER: IBM PS/1

; OPERATING SYSTEM: MS DOS

; SOFTWARE: WordPerfect version 5.1

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;
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/807,992B
; FILING DATE: March 3, 1997
; CLASSIFICATION: 424
; ATTORNEY/AGENT INFORMATION:
; NAME: David Prashker, Esq.
; REGISTRATION NUMBER: 29,693
; REFERENCE/DOCKET NUMBER: BIS-033
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (978) 525-3794
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 147 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
;
; US-08-807-992B-1
;
Query Match          67.9% Score 53; DB 3; Length 147;
Best Local Similarity 75.0%; Pred. No. 0.59;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy      2 RTPEKCDKPRR 13
Db      136 RARQEKCDKPRR 147

RESULT 6
US-09-392-932-1
; Sequence 1, Application US/09392932
; Patent No. 6352975
; GENERAL INFORMATION:
; APPLICANT: Johnson, Richard J.
; TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND
; FILE REFERENCE: SCIOS.002A
; CURRENT APPLICATION NUMBER: US/09/392,932
; CURRENT FILING DATE: 1999-09-09
; EARLIER APPLICATION NUMBER: 60/099,694
; NUMBER OF SEQ ID NOS: 11
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 1
; LENGTH: 147
; TYPE: PRT
; ORGANISM: Homo Sapiens
;
US-09-392-932-1
;
Query Match          67.9% Score 53; DB 4; Length 147;
Best Local Similarity 75.0%; Pred. No. 0.59;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy      2 RTPEKCDKPRR 13
Db      136 RARQEKCDKPRR 147

RESULT 7
US-08-706-054A-4
; Sequence 4, Application US/08706054A
; Patent No. 6451764
; GENERAL INFORMATION:
; APPLICANT: Lee, James
; TITLE OF INVENTION: VEGF-Related Protein
; NUMBER OF SEQUENCES: 12
; CORRESPONDENCE ADDRESSES:
; ADDRESS: Genentech, Inc.
; STREET: 460 Point San Bruno Blvd
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
;

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;
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
;
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/706,054A
; FILING DATE: 30-Aug-1996
; CLASSIFICATION: <unknown>
;
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 60/003491
; FILING DATE: 08-Sep-1995
; ATTORNEY/AGENT INFORMATION:
; NAME: Lee, Wendy M.
; REGISTRATION NUMBER: P-40,378
; REFERENCE/DOCKET NUMBER: P0963R1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 415/225-1994
; TELEFAX: 415/952-9881
; TELEX: 910/371-7168
;
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 147 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
;
; SEQUENCE DESCRIPTION: SEQ ID NO: 4:
;
; US-08-706-054A-4
;
Query Match          67.9% Score 53; DB 4; Length 147;
Best Local Similarity 75.0%; Pred. No. 0.59;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy      2 RTPEKCDKPRR 13
Db      136 RARQEKCDKPRR 147

RESULT 8
US-09-574-708A-2
; Sequence 2, Application US/09574708A
; Patent No. 6475796
; GENERAL INFORMATION:
; APPLICANT: N. Stephen Pollitt
; TITLE OF INVENTION: Vascular endothelial growth factor
; FILE REFERENCE: SCIOS004A
; CURRENT APPLICATION NUMBER: US/09/574,708A
; CURRENT FILING DATE: 2000-05-18
; PRIOR FILING DATE: 1999-05-20
; NUMBER OF SEQ ID NOS: 11
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 2
; LENGTH: 147
; TYPE: PRT
; ORGANISM: Homo sapiens
;
US-09-574-708A-2
;
Query Match          67.9% Score 53; DB 4; Length 147;
Best Local Similarity 75.0%; Pred. No. 0.59;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy      2 RTPEKCDKPRR 13
Db      136 RARQEKCDKPRR 147

RESULT 9
US-09-313-299-4
; Sequence 4, Application US/09313299B
; Patent No. 6576608
;

```

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; GENERAL INFORMATION:
; APPLICANT: Lee, James
; TITLE OF INVENTION: VEGF-RELATED PROTEIN
; FILE REFERENCE: P0963R1D1
; CURRENT APPLICATION NUMBER: US/09/313,299B
; CURRENT FILING DATE: 1999-05-17
; EARLIER APPLICATION NUMBER: US 08/706,054
; EARLIER FILING DATE: 1996-08-30
; EARLIER APPLICATION NUMBER: US 60/003,491
; NUMBER OF SEQ ID NOS: 12
; SEQ ID NO 4
; LENGTH: 147
; TYPE: PRT
; ORGANISM: Human
; FEATURE:
; NAME/KEY: Human
; LOCATION: 1-147
; OTHER INFORMATION: Sequence source: VEGF-121
; Patent No. 6576608
; US-09-313-299-4

Query Match          67.9%; Score 53; DB 4; Length 147;
Best Local Similarity 75.0%; Pred. No. 0.59;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 2 RTKPEKCDKPRR 13
Db 136 RARQKCDKPRR 147

RESULT 10
; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.;ABRAHAM, JUDITH A.;FIDDES, JOHN
; C.;MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450,883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:9;
; LENGTH: 120
; 5194596-9

Query Match          66.0%; Score 51.5; DB 6; Length 120;
Best Local Similarity 61.1%; Pred. No. 0.81;
Matches 11; Conservative 0; Mismatches 2; Indels 5; Gaps 1;

Qy 1 CRTK-----PEKCDKPRR 13
Db 103 CRPKDKARQKCDKPRR 120

RESULT 11
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.;ABRAHAM, JUDITH A.;FIDDES,
; JOHN C.;MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGEF120 AND
; HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGEF120 AND HVEGF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
```

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; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:9;
; LENGTH: 120
; 5219739-9

Query Match          66.0%; Score 51.5; DB 6; Length 120;
Best Local Similarity 61.1%; Pred. No. 0.81;
Matches 11; Conservative 0; Mismatches 2; Indels 5; Gaps 1;

Qy 1 CRTK-----PEKCDKPRR 13
Db 103 CRPKDKARQKCDKPRR 120

RESULT 12
; US-09-431-888-3
; Sequence 3, Application US/09431888A
; Patent No. 6541008
; GENERAL INFORMATION:
; APPLICANT: Wise, Lynn M
; APPLICANT: Mercer, Andrew A
; APPLICANT: Savory, Ioreen J
; APPLICANT: Fleming, Stephen B
; APPLICANT: Stacker, Stephen
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR-LIKE PROTEIN FROM ORF
; TITLE OF INVENTION: VIRUS NZ2 BINDS AND ACTIVATES MAMMALIAN VEGF
; FILE REFERENCE: RECEPTOR-2, AND USES THEREOF
; CURRENT APPLICATION NUMBER: US/09/431,888A
; Patent No. 6541008
; CURRENT FILING DATE: 1999-11-02
; EARLIER APPLICATION NUMBER: 60/106,689
; EARLIER FILING DATE: 1998-11-02
; EARLIER APPLICATION NUMBER: 60/106,800
; EARLIER FILING DATE: 1998-11-03
; NUMBER OF SEQ ID NOS: 11
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 3
; LENGTH: 147
; TYPE: PRT
; ORGANISM: Homo sapiens
; US-09-431-888-3

Query Match          61.5%; Score 48; DB 4; Length 147;
Best Local Similarity 66.7%; Pred. No. 3.2;
Matches 8; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

Qy 2 RTKPEKCDKPRR 13
Db 136 RARQKCDKPRR 147

RESULT 13
; US-09-037-983C-17
; Sequence 17, Application US/09037983C
; Patent No. 6583276
; GENERAL INFORMATION:
; APPLICANT: Newfeld, Gera
; APPLICANT: Keshet, Eli
; APPLICANT: Vlodevsky, Israel
; APPLICANT: Poltorak, Zoya
; TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Dise
; FILE REFERENCE: 000274-00009
; CURRENT APPLICATION NUMBER: US/09/037,983C
; CURRENT FILING DATE: 1998-03-11
; PRIOR APPLICATION NUMBER: 60/025,537
; PRIOR FILING DATE: 1996-09-06
; NUMBER OF SEQ ID NOS: 17
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 17
; LENGTH: 137
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Search completed: January 30, 2004, 11:47:51  
 Job time : 6.5333 secs

TYPE: PRT  
 ORGANISM: Homo sapiens  
 US-09-037-983C-17

Query Match 60.3%; Score 47; DB 4; Length 137;  
 Best Local Similarity 66.7%; Pred. No. 4.2;  
 Matches 8; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 2 RTPEKCDKRR 13  
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 Db 126 KRRKKCDKRR 137

RESULT 14  
 US-09-252-991A-21174  
 ; Sequence 21174, Application US/09252991A  
 ; Patent No. 6551795  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Marc J. Rubenfield et al.  
 ; TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS  
 ; FILE REFERENCE: 107196.136  
 ; CURRENT APPLICATION NUMBER: US/09/252,991A  
 ; CURRENT FILING DATE: 1999-02-18  
 ; PRIOR APPLICATION NUMBER: US 60/074,788  
 ; PRIOR FILING DATE: 1998-02-18  
 ; PRIOR APPLICATION NUMBER: US 60/094,190  
 ; PRIOR FILING DATE: 1998-07-27  
 ; NUMBER OF SEQ ID NOS: 33142  
 ; SEQ ID NO 21174  
 ; LENGTH: 168  
 ; TYPE: PRT  
 ; ORGANISM: Pseudomonas aeruginosa  
 US-09-252-991A-21174

Query Match 56.4%; Score 44; DB 4; Length 168;  
 Best Local Similarity 53.8%; Pred. No. 14;  
 Matches 7; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 CRTPEKCDKRR 13  
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 Db 67 CRSRPSACAKRR 79

RESULT 15  
 US-09-252-991A-30631  
 ; Sequence 30631, Application US/09252991A  
 ; Patent No. 6551795  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Marc J. Rubenfield et al.  
 ; TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS  
 ; FILE REFERENCE: 107196.136  
 ; CURRENT APPLICATION NUMBER: US/09/252,991A  
 ; CURRENT FILING DATE: 1999-02-18  
 ; PRIOR APPLICATION NUMBER: US 60/074,788  
 ; PRIOR FILING DATE: 1998-02-18  
 ; PRIOR APPLICATION NUMBER: US 60/094,190  
 ; PRIOR FILING DATE: 1998-07-27  
 ; NUMBER OF SEQ ID NOS: 33142  
 ; SEQ ID NO 30631  
 ; LENGTH: 704  
 ; TYPE: PRT  
 ; ORGANISM: Pseudomonas aeruginosa  
 US-09-252-991A-30631

Query Match 52.6%; Score 41; DB 4; Length 704;  
 Best Local Similarity 63.6%; Pred. No. 1.5e+02;  
 Matches 7; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 1 CRTPEKCDKRR 11  
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 Db 4 CRTAPICRKP 14



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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:44:49 ; Search time 12.8667 Seconds  
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Title: US-09-266-543-3  
Perfect score: 78  
Sequence: 1 CRTKPKCKDKPRR 13

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 789580 seqs, 207824079 residues

Total number of hits satisfying chosen parameters: 789580

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

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Published Applications AA.\*  
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17: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep.\*  
18: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	69	88.5	12	US-10-156-932-73	Sequence 73, Appl
2	69	88.5	13	US-10-156-932-81	Sequence 81, Appl
3	67.9	105	9	US-09-925-299-927	Sequence 927, App
4	53	67.9	105	US-09-925-299-927	Sequence 927, App
5	53	67.9	121	US-09-832-355A-1	Sequence 1, Appl
6	53	67.9	147	US-10-346-802-4	Sequence 4, Appl
7	53	67.9	147	US-10-392-931-2	Sequence 2, Appl
8	53	67.9	147	US-10-418-529-2	Sequence 2, Appl
9	53	67.9	147	US-10-083-817-1	Sequence 1, Appl
10	53	67.9	147	US-10-268-447-2	Sequence 2, Appl
11	53	67.9	212	US-09-832-355A-84	Sequence 84, Appl
12	53	67.9	222	US-09-832-355A-79	Sequence 79, Appl
13	53	67.9	339	US-09-832-355A-97	Sequence 97, Appl
14	53	67.9	367	US-09-832-355A-94	Sequence 94, Appl
15	53	67.9	367	US-09-832-355A-104	Sequence 104, App

16	53	67.9	368	11	US-09-832-355A-74	Sequence 74, Appl
17	53	67.9	371	11	US-09-832-355A-89	Sequence 89, Appl
18	53	67.9	371	11	US-09-832-355A-103	Sequence 103, Appl
19	53	67.9	462	11	US-09-832-355A-100	Sequence 100, Appl
20	53	67.9	630	12	US-10-053-637-24	Sequence 24, Appl
21	53	67.9	648	11	US-09-832-355A-126	Sequence 126, Appl
22	53	67.9	650	12	US-10-053-637-28	Sequence 28, Appl
23	48	61.5	11	11	US-09-832-355A-8	Sequence 8, Appl
24	48	61.5	154	11	US-09-832-355A-62	Sequence 62, Appl
25	48	61.5	353	15	US-10-186-793A-57	Sequence 57, Appl
26	47	60.3	150	11	US-09-832-355A-61	Sequence 61, Appl
27	44	56.4	13	12	US-10-263-162-19	Sequence 19, Appl
28	44	56.4	14	12	US-10-263-162-14	Sequence 14, Appl
29	44	56.4	15	12	US-10-263-162-16	Sequence 16, Appl
30	44	56.4	15	12	US-10-263-162-51	Sequence 51, Appl
31	44	56.4	17	12	US-10-263-162-50	Sequence 50, Appl
32	44	56.4	18	12	US-10-263-162-15	Sequence 15, Appl
33	44	56.4	19	12	US-10-263-162-13	Sequence 13, Appl
34	44	56.4	20	12	US-10-263-162-49	Sequence 49, Appl
35	44	56.4	22	12	US-10-263-162-4	Sequence 4, Appl
36	43	55.1	20	12	US-10-263-162-12	Sequence 12, Appl
37	43	55.1	154	11	US-09-832-355A-59	Sequence 59, Appl
38	43	55.1	162	11	US-09-832-355A-60	Sequence 60, Appl
39	42	53.8	89	9	US-09-925-301-1117	Sequence 1117, Ap
40	40	51.3	255	12	US-10-108-160A-4175	Sequence 4175, Ap
41	40	51.3	2906	12	US-10-015-115-60	Sequence 60, Appl
42	40	51.3	2911	12	US-10-295-027-162	Sequence 162, Appl
43	39	50.0	27	12	US-10-318-302-3	Sequence 3, Appl
44	39	50.0	55	12	US-10-318-302-2	Sequence 2, Appl
45	39	50.0	165	12	US-10-318-302-1	Sequence 1, Appl

#### ALIGNMENTS

RESULT 1  
US-10-156-932-73  
; Sequence 73, Application US/10156932  
; Publication No. US20030069181A1  
; GENERAL INFORMATION:  
; APPLICANT: Wong, Albert J.  
; TITLE OF INVENTION: Alternative Splice Forms of Proteins as  
; FILE OF INVENTION: Basile for Multiple Therapeutic Modalities  
; FILE REFERENCE: 8321-81  
; CURRENT APPLICATION NUMBER: US/10/156,932  
; CURRENT FILING DATE: 2002-05-28  
; PRIOR APPLICATION NUMBER: US 60/293,791  
; PRIOR FILING DATE: 2001-05-25  
; NUMBER OF SEQ ID NOS: 82  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 73  
; LENGTH: 12  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: VEGF alt splice #1  
US-10-156-932-73

Query Match 88.5%; Score 69; DB 15; Length 12;  
Best Local Similarity 100.0%; Pred. No. 0.00052;  
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 RTKPKCKDKPRR 13  
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DB 1 RTKPKCKDKPRR 12

RESULT 2  
US-10-156-932-81  
; Sequence 81, Application US/10156932  
; Publication No. US20030069181A1  
; GENERAL INFORMATION:  
; APPLICANT: Wong, Albert J.

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: SEQ ID NO 927
: LENGTH: 105
: TYPE: PR
: ORGANISM: Homo sapiens
US-09-925-299-927

Query Match
Best Local Similarity 67.9%; Score 53; DB 11; Length 105;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0

QY 2 RTKPEKCDKPRR 13
| : |||||
Db 94 RARQEKCDKPRR 105

RESULT 5
US-09-832-355A-1
: Sequence 1, Application US/09832355A
: Publication No. US20030027751A1
GENERAL INFORMATION:
APPLICANT: Kovacsdi, Imre
APPLICANT: Kessler, Paul
TITLE OF INVENTION: VEGF FUSION PROTEINS
FILE REFERENCE: 205654
CURRENT APPLICATION NUMBER: US/09/332.355A
CURRENT FILING DATE: 2001-04-10
NUMBER OF SEQ ID NOS: 126
SOFTWARE: PatentIn version 3.0
SEQ ID NO 1
LENGTH: 121
TYPE: PR
ORGANISM: Homo sapiens
US-09-832-355A-1

Query Match
Best Local Similarity 67.9%; Score 53; DB 11; Length 121;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0

QY 2 RTKPEKCDKPRR 13
| : |||||
Db 110 RARQEKCDKPRR 121

RESULT 6
US-10-346-802-4
: Sequence 4, Application US/10346802
: Publication No. US20030166873A1
GENERAL INFORMATION:
APPLICANT: Lee, James
APPLICANT: Wood, William I.
TITLE OF INVENTION: VEGF-RELATED PROTEIN
FILE REFERENCE: P0963R1D1
CURRENT APPLICATION NUMBER: US/10/346.802
CURRENT FILING DATE: 2003-01-17
PRIOR APPLICATION NUMBER: US/09/313.299B
PRIOR FILING DATE: 1999-05-17
PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: US 08/706,054
PRIOR FILING DATE: EARLIER FILING DATE: 1996-08-30
PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: US 60/003,491
PRIOR FILING DATE: EARLIER FILING DATE: 1995-09-08
NUMBER OF SEQ ID NOS: 12
SEQ ID NO 4
LENGTH: 147
TYPE: PR
ORGANISM: Human
FEATURE:
NAME/KEY: Human
LOCATION: 1-147
OTHER INFORMATION: Sequence source: VEGE-121
US-10-346-802-4

Query Match
Best Local Similarity 67.9%; Score 53; DB 12; Length 147;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0

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Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 2 RTPEKCDKPRR 13  
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Db 136 RARQEKCDKPRR 147

RESULT 7  
US-10-392-931-2  
; Sequence 2, Application US/10392931  
; Publication No. US2003019463A1  
; GENERAL INFORMATION:  
; APPLICANT: Schreiner, George F.  
; APPLICANT: Johnson, Richard J.  
; APPLICANT: Scios, Inc.  
; APPLICANT: University of Washington  
; TITLE OF INVENTION: TREATMENT OF MICROVASCULAR ANGIOPATHIES  
; FILE REFERENCE: SCIOS.003A  
; CURRENT APPLICATION NUMBER: US/10/392,931  
; CURRENT FILING DATE: 1999-09-09  
; PRIOR APPLICATION NUMBER: 60/099694  
; PRIOR FILING DATE: 1998-09-09  
; PRIOR APPLICATION NUMBER: 60/126406  
; PRIOR FILING DATE: 1999-03-26  
; PRIOR APPLICATION NUMBER: 60/126615  
; PRIOR FILING DATE: 1999-03-27  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 2  
; LENGTH: 147  
; TYPE: PRT  
; ORGANISM: Homo sapien  
US-10-392-931-2

Query Match 67.9%; Score 53; DB 12; Length 147;  
Best Local Similarity 75.0%; Pred. No. 1.4;  
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 2 RTPEKCDKPRR 13  
| : |||||  
Db 136 RARQEKCDKPRR 147

RESULT 8  
US-10-418-529-2  
; Sequence 2, Application US/10418529  
; Publication No. US20030220262A1  
; GENERAL INFORMATION:  
; APPLICANT: Schreiner, George F.  
; APPLICANT: Johnson, Richard J.  
; APPLICANT: Scios, Inc.  
; APPLICANT: University of Washington  
; TITLE OF INVENTION: TREATMENT OF ECLAMPSIA AND PREECLAMPSIA  
; FILE REFERENCE: SCIOS.003C1  
; CURRENT APPLICATION NUMBER: US/10/418,529  
; CURRENT FILING DATE: 2003-04-16  
; PRIOR APPLICATION NUMBER: 60/099694  
; PRIOR FILING DATE: 1998-09-09  
; PRIOR APPLICATION NUMBER: 60/126406  
; PRIOR FILING DATE: 1999-03-26  
; PRIOR APPLICATION NUMBER: 60/126615  
; PRIOR FILING DATE: 1999-03-27  
; PRIOR APPLICATION NUMBER: 09/392931  
; PRIOR FILING DATE: 1999-09-09  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 2  
; LENGTH: 147  
; TYPE: PRT  
; ORGANISM: Homo sapien  
US-10-418-529-2

Query Match 67.9%; Score 53; DB 12; Length 147;

Best Local Similarity 75.0%; Pred. No. 1.4;  
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 2 RTPEKCDKPRR 13  
| : |||||  
Db 136 RARQEKCDKPRR 147

RESULT 9  
US-10-083-817-1  
; Sequence 1, Application US/10083817  
; Publication No. US20020193288A1  
; GENERAL INFORMATION:  
; APPLICANT: Schreiner, George F.  
; APPLICANT: Johnson, Richard J.  
; APPLICANT: University of Washington  
; TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND  
; FILE REFERENCE: SCIOS.002C1  
; CURRENT APPLICATION NUMBER: US/10/083,817  
; CURRENT FILING DATE: 2002-02-26  
; PRIOR APPLICATION NUMBER: 60/099,694  
; PRIOR FILING DATE: 1998-09-09  
; PRIOR APPLICATION NUMBER: 09/392,932  
; PRIOR FILING DATE: 1999-09-09  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 1  
; LENGTH: 147  
; TYPE: PRT  
; ORGANISM: Homo Sapien  
US-10-083-817-1

Query Match 67.9%; Score 53; DB 14; Length 147;  
Best Local Similarity 75.0%; Pred. No. 1.4;  
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 2 RTPEKCDKPRR 13  
| : |||||  
Db 136 RARQEKCDKPRR 147

RESULT 10  
US-10-268-447-2  
; Sequence 2, Application US/10268447  
; Publication No. US20030096754A1  
; GENERAL INFORMATION:  
; APPLICANT: N. Stephen Pollitt  
; APPLICANT: Judith A. Abraham  
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR  
; FILE REFERENCE: SCIOS.004DV1  
; CURRENT APPLICATION NUMBER: US/10/268,447  
; CURRENT FILING DATE: 2002-10-10  
; PRIOR APPLICATION NUMBER: 60/135,312  
; PRIOR FILING DATE: 1999-05-20  
; PRIOR APPLICATION NUMBER: 09/574,708  
; PRIOR FILING DATE: 2000-05-18  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 2  
; LENGTH: 147  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-10-268-447-2

Query Match 67.9%; Score 53; DB 15; Length 147;  
Best Local Similarity 75.0%; Pred. No. 1.4;  
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 2 RTPEKCDKPRR 13  
| : |||||  
Db 136 RARQEKCDKPRR 147

RESULT 11  
US-09-832-355A-84  
; Sequence 84, Application US/09832355A  
; Publication No. US20030027751A1  
; GENERAL INFORMATION:  
; APPLICANT: Kovesdi, Imre  
; APPLICANT: Keszler, Paul  
; TITLE OF INVENTION: VEGF FUSION PROTEINS  
; FILE REFERENCE: 205654  
; CURRENT APPLICATION NUMBER: US/09/832,355A  
; CURRENT FILING DATE: 2001-04-10  
; NUMBER OF SEQ ID NOS: 126  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 84  
; LENGTH: 212  
; TYPE: PRT  
; ORGANISM: Artificial sequence  
; FEATURE:  
; NAME/KEY: misc.feature  
; LOCATION: (1..7)  
; OTHER INFORMATION: Synthetic  
US-09-832-355A-84

Query Match 67.9%; Score 53; DB 11; Length 212;  
Best Local Similarity 75.0%; Pred. No. 2;  
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 RTKPEKCDKPRR 13  
| : |||||  
Db 136 RARQEKCDKPRR 147

RESULT 12  
US-09-832-355A-79  
; Sequence 79, Application US/09832355A  
; Publication No. US20030027751A1  
; GENERAL INFORMATION:  
; APPLICANT: Kovesdi, Imre  
; APPLICANT: Keszler, Paul  
; TITLE OF INVENTION: VEGF FUSION PROTEINS  
; FILE REFERENCE: 205654  
; CURRENT APPLICATION NUMBER: US/09/832,355A  
; CURRENT FILING DATE: 2001-04-10  
; NUMBER OF SEQ ID NOS: 126  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 79  
; LENGTH: 222  
; TYPE: PRT  
; ORGANISM: Artificial sequence  
; FEATURE:  
; NAME/KEY: misc.feature  
; LOCATION: (1..7)  
; OTHER INFORMATION: Synthetic  
US-09-832-355A-79

Query Match 67.9%; Score 53; DB 11; Length 222;  
Best Local Similarity 75.0%; Pred. No. 2.1;  
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 RTKPEKCDKPRR 13  
| : |||||  
Db 136 RARQEKCDKPRR 147

RESULT 13  
US-09-832-355A-97  
; Sequence 97, Application US/09832355A  
; Publication No. US20030027751A1  
; GENERAL INFORMATION:  
; APPLICANT: Kovesdi, Imre  
; APPLICANT: Keszler, Paul  
; TITLE OF INVENTION: VEGF FUSION PROTEINS

; FILE REFERENCE: 205654  
; CURRENT APPLICATION NUMBER: US/09/832,355A  
; CURRENT FILING DATE: 2001-04-10  
; NUMBER OF SEQ ID NOS: 126  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 97  
; LENGTH: 339  
; TYPE: PRT  
; ORGANISM: Artificial sequence  
; FEATURE:  
; NAME/KEY: misc.feature  
; LOCATION: (1..7)  
; OTHER INFORMATION: Synthetic  
US-09-832-355A-97

Query Match 67.9%; Score 53; DB 11; Length 339;  
Best Local Similarity 75.0%; Pred. No. 3.1;  
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 RTKPEKCDKPRR 13  
| : |||||  
Db 136 RARQEKCDKPRR 147

RESULT 14  
US-09-832-355A-94  
; Sequence 94, Application US/09832355A  
; Publication No. US20030027751A1  
; GENERAL INFORMATION:  
; APPLICANT: Kovesdi, Imre  
; APPLICANT: Keszler, Paul  
; TITLE OF INVENTION: VEGF FUSION PROTEINS  
; FILE REFERENCE: 205654  
; CURRENT APPLICATION NUMBER: US/09/832,355A  
; CURRENT FILING DATE: 2001-04-10  
; NUMBER OF SEQ ID NOS: 126  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 94  
; LENGTH: 367  
; TYPE: PRT  
; ORGANISM: Artificial sequence  
; FEATURE:  
; NAME/KEY: misc.feature  
; LOCATION: (1..7)  
; OTHER INFORMATION: Synthetic  
US-09-832-355A-94

Query Match 67.9%; Score 53; DB 11; Length 367;  
Best Local Similarity 75.0%; Pred. No. 3.3;  
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 RTKPEKCDKPRR 13  
| : |||||  
Db 136 RARQEKCDKPRR 147

RESULT 15  
US-09-832-355A-104  
; Sequence 104, Application US/09832355A  
; Publication No. US20030027751A1  
; GENERAL INFORMATION:  
; APPLICANT: Kovesdi, Imre  
; APPLICANT: Keszler, Paul  
; TITLE OF INVENTION: VEGF FUSION PROTEINS  
; FILE REFERENCE: 205654  
; CURRENT APPLICATION NUMBER: US/09/832,355A  
; CURRENT FILING DATE: 2001-04-10  
; NUMBER OF SEQ ID NOS: 126  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 104  
; LENGTH: 367  
; TYPE: PRT  
; ORGANISM: Artificial sequence

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; FEATURE:
; NAME/KEY: misc.feature
; LOCATION: ().T)
; OTHER INFORMATION: Synthetic
US-09-832-355A-104

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Query Match          67.9%; Score 53; DB 11; Length 367;
Best Local Similarity 75.0%; Pred. No. 3.3;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

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QY 2 RTKPEKCDKPRR 13
   | : |||||
Db 136 RAQEKCDKPRR 147

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Search completed: January 30, 2004, 12:15:01
Job time : 13.9917 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:34:23 ; Search time 5.6 Seconds  
(without alignments)  
223.249 Million cell updates/sec

Title: US-09-266-543-3  
Perfect score: 78  
Sequence: 1 CRTKPEKCDKPRR 13

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283308 seqs, 96168682 residues  
Total number of hits satisfying chosen parameters: 283308

Minimum DB seq length: 0  
Maximum DB seq length: 200000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : PIR\_76:\*  
1: p1r1:\*  
2: p1r2:\*  
3: p1r3:\*  
4: p1r4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	length	DB ID	Description
1	51.5	66.0	120	2 A33787	vascular endotheli
2	51.5	66.0	146	2 S57956	ovine vascular end
3	42	53.8	72	2 F97642	hypothetical prote
4	41	53.8	227	2 AH2123	hypothetical prote
5	41	52.6	139	2 T09850	albumin 2S storage
6	41	52.6	139	2 T09878	albumin 2S storage
7	41	52.6	825	2 A26983	regulatory protein
8	41	52.6	1080	2 A71485	probable pbp2-tran
9	40	51.3	216	2 T12727	hypothetical prote
10	40	51.3	297	1 BVECLT	bacteriophage T4 1
11	40	51.3	403	2 C96757	hypothetical prote
12	40	51.3	526	2 TS1372	hypothetical prote
13	40	51.3	590	1 TVPFD5	protein-tyrosine k
14	40	51.3	636	2 I46889	gene NK10 protein
15	40	51.3	2326	2 B47447	calcium channel pr
16	40	51.3	2907	2 A57278	fibrillin-2 precur
17	40	51.3	2918	2 A54105	fibrillin-2 precur
18	39	50.0	190	2 S52130	vascular endotheli
19	39	50.0	190	2 B40080	vascular endotheli
20	39	50.0	190	2 B44881	vascular endotheli
21	39	50.0	190	2 A35987	glitoma-derived vas
22	39	50.0	214	2 A44881	vascular endotheli
23	39	50.0	232	2 A41551	vascular endotheli
24	39	50.0	442	2 T01731	hypothetical prote
25	39	50.0	559	2 B44265	ENL (translocation
26	39	50.0	662	2 T23757	hypothetical prote
27	39	50.0	1124	2 T30340	derma adenosine de
28	39	50.0	1296	2 T16859	hypothetical prote
29	39	50.0	1391	2 T20406	hypothetical prote

30	39	50.0	1502	1 R8BYH1	CYCl/CYP3 transcri
31	38.5	49.4	285	2 G85016	probable myb-relat
32	38.5	49.4	371	2 AF3227	acrosiophine synth
33	38	48.7	236	2 A40143	placental lactogen
34	38	48.7	285	2 J70961	glutathione synth
35	38	48.7	325	2 AH1821	protein-export mem
36	38	48.7	475	2 T32793	hypothetical prote
37	38	48.7	477	2 T32938	hypothetical prote
38	38	48.7	512	2 T38705	glutathione synth
39	38	48.7	498	2 T37819	probable zinc meta
40	38	48.7	533	2 T10216	hypothetical prote
41	38	48.7	601	2 A27020	DIF-induced presen
42	38	48.7	622	2 E69006	glutamate synthase
43	38	48.7	709	2 T29692	hypothetical prote
44	38	48.7	775	2 S69515	replication initia
45	38	48.7	884	2 A10424	translation initia

## ALIGNMENTS

RESULT 1  
A33787  
vascular endothelial growth factor (version 1) - bovine  
C:Species: Bos primigenius taurus (cattle)  
C:Date: 16-Mar-1990 #sequence\_revision 16-Mar-1990 #text\_change 05-Nov-1999  
C:Accession: A33787  
R:Riescher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Crisp  
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989  
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived growth  
A:Reference number: A33787; MUID:90121225; PMID:2610687  
A:Accession: A33787  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-120 <TIS>  
A:Cross-references: GB:M33750; NID:G163810; PIDN:AAA30805.1; PID:G163811  
A:Keywords: alternative splicing

Query Match  
Best Local Similarity 66.0%; Score 51.5; DB 2; Length 120;  
Matches 11; Conservative 0; Mismatches 2; Indels 5; Gaps 1;

DB 103 CRPKDKARQEKCDKPRR 120

RESULT 2  
S57956  
ovine vascular endothelial growth factor - sheep  
C:Species: Ovis orientalis aries. Ovis ammon aries (domestic sheep)  
C:Date: 13-Jan-1996 #sequence\_revision 01-Mar-1996 #text\_change 05-Nov-1999  
C:Accession: S57956  
R:Redmer, D.A.; Dai, Y.; Li, J.; Jones, S.C.; Moor, R.M.  
submitted to the EMBL Data Library, July 1995  
A:Reference number: S57956  
A:Accession: S57956  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-146 <RED>  
A:Cross-references: EMBL:X89506; NID:g899350; PIDN:CAA61677.1; PID:g899351

Query Match  
Best Local Similarity 66.0%; Score 51.5; DB 2; Length 146;  
Matches 11; Conservative 0; Mismatches 2; Indels 5; Gaps 1;

DB 129 CRPKDKARQEKCDKPRR 146

RESULT 3  
F97642

hypothetical protein AGR\_C\_4274 [imported] - Agrobacterium tumefaciens (strain C58, Cere  
 C:Species: Agrobacterium tumefaciens  
 C:Date: 30-Sep-2001 #sequence\_revision 30-Sep-2001 #text\_change 18-Nov-2002  
 C:Accession: F97642  
 R:Goodner, B.; Hinkle, G.; Gattung, S.; Miller, N.; Blanchard, M.; Qurollo, B.; Goldman,  
 A.; Liu, F.; Wilm, C.; Allinger, M.; Doughly, D.; Scott, C.; Lappas, C.; Markez, B.;  
 Science 294, 2333-2328, 2001  
 A:Title: Genome Sequence of the Plant Pathogen and Biotechnology Agent Agrobacterium tum  
 A:Reference number: A97359; MUID:21608551; PMID:11743194  
 A:Accession: F97642  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-72 <KUR>  
 A:Cross-references: GB:AE007869; PIDN:AAK8095.1; PID:g15157525; GSPDB:GN00169  
 C:Genetics:  
 A:Gene: AGR\_C\_4274  
 A:Map position: circular chromosome

Query Match 53.8%; Score 42; DB 2; Length 72;  
 Best Local Similarity 53.8%; Pred. No. 11;  
 Matches 7; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

Qy 1 CRTPEKCDKRR 13  
 ||| |||  
 Db 53 CQTKRPPCDRLRR 65

RESULT 4  
 AH2123  
 hypothetical protein alr2543 [imported] - Nostoc sp. (strain PCC 7120)  
 C:Species: Nostoc sp. PCC 7120  
 A:Note: Nostoc sp. strain PCC 7120 is a synonym of Anabaena sp. strain PCC 7120  
 C:Date: 14-Dec-2001 #sequence\_revision 14-Dec-2001 #text\_change 09-Dec-2002  
 C:Accession: AH2123  
 R:Kaneko, T.; Nakamura, Y.; Wolk, C.P.; Kuritz, T.; Sasamoto, S.; Matanabe, A.; Itiguchi,  
 Nakazaki, N.; Shimpo, S.; Sugimoto, M.; Takazawa, M.; Yamada, M.; Yasuda, M.; Tabata, S.  
 DNA Res. 8, 205-213, 2001  
 A:Title: Complete Genomic Sequence of the Filamentous Nitrogen-fixing Cyanobacterium Ana  
 A:Reference number: AB1807; MUID:21595285; PMID:11759840  
 A:Accession: AH2123  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-227 <KUR>  
 A:Cross-references: GB:BA000019; PIDN:BAW74242.1; PID:g17131635; GSPDB:GN00179  
 A:Experimental source: strain PCC 7120  
 C:Genetics:  
 A:Gene: alr2543  
 C:Superfamily: Synecocystis hypothetical protein slr0748

Query Match 53.8%; Score 42; DB 2; Length 227;  
 Best Local Similarity 58.3%; Pred. No. 29;  
 Matches 7; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

Qy 2 RTKPEKCDKRR 13  
 ||| |||  
 Db 210 RLRPDRODKRR 221

RESULT 5  
 T09850  
 albumin 2S storage protein precursor - upland cotton  
 C:Species: Gossypium hirsutum (upland cotton)  
 C:Date: 16-Jul-1999 #sequence\_revision 16-Jul-1999 #text\_change 16-Jul-1999  
 C:Accession: T09850  
 R:Galau, G.A.; Wang, H.Y.C.; Hughes, D.W.  
 submitted to the EMBL Data Library, January 1992  
 A:Description: Cotton Mats (Cl64) gene and cDNAs encoding a methionine-rich 2S albumin a  
 A:Reference number: Z16886  
 A:Accession: T09850  
 A:Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: mRNA  
 A:Residues: 1-139 <GAL>  
 A:Cross-references: EMBL:M83301; NID:g167310; PID:g167311

C:Genetics:  
 A:Gene: Mats-D  
 F:1-20/Domain: signal sequence #status predicted <SIG>  
 F:21-139/Product: albumin 2S storage protein #status predicted <MAT>

Query Match 52.6%; Score 41; DB 2; Length 139;  
 Best Local Similarity 46.2%; Pred. No. 28;  
 Matches 6; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

Qy 1 CRTPEKCDKRR 13  
 ||| |||  
 Db 124 CEMEPGRCDTPSR 136

RESULT 6  
 T09878  
 albumin 2S storage protein precursor Mats-A - upland cotton  
 C:Species: Gossypium hirsutum (upland cotton)  
 C:Date: 16-Jul-1999 #sequence\_revision 16-Jul-1999 #text\_change 29-Oct-1999  
 C:Accession: T09878  
 R:Galau, G.A.; Wang, H.Y.C.; Hughes, D.W.  
 submitted to the EMBL Data Library, January 1992  
 A:Description: Cotton Mats-A (Cl64) gene and Mats-D cDNAs encoding methionine-rich 2S al  
 A:Reference number: Z16893  
 A:Accession: T09878  
 A:Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: DNA  
 A:Residues: 1-139 <GAL>  
 A:Cross-references: EMBL:M86213; NID:g167358; PID:g167359  
 C:Genetics:  
 A:Gene: Mats-A  
 C:Keywords: storage protein  
 F:1-20/Domain: signal sequence #status predicted <SIG>  
 F:21-139/Product: albumin 2S storage protein Mats-A #status predicted <MAT>

Query Match 52.6%; Score 41; DB 2; Length 139;  
 Best Local Similarity 46.2%; Pred. No. 28;  
 Matches 6; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

Qy 1 CRTPEKCDKRR 13  
 ||| |||  
 Db 124 CEMEPGRCDTPSR 136

RESULT 7  
 A26983  
 regulatory protein QUTA - Emeritella nidulans  
 C:Species: Emeritella nidulans, Aspergillus nidulans  
 C:Date: 31-Mar-1989 #sequence\_revision 31-Mar-1989 #text\_change 21-Jul-2000  
 C:Accession: A26983  
 R:Berl, R.K.; Whittington, H.; Roberts, C.F.; Hawkins, A.R.  
 Nucleic Acids Res. 15, 7991-8001, 1987  
 A:Title: Isolation and characterization of the positively acting regulatory gene QUTA fr  
 A:Reference number: A26983; MUID:88040423; PMID:3313276  
 A:Accession: A26983  
 A:Molecule type: DNA  
 A:Residues: 1-825 <BBR>  
 A:Cross-references: GB:X06252; NID:g2396; PIDN:CAA9594.1; PID:g2397  
 C:Genetics:  
 A:Gene: QUTA  
 C:Superfamily: unassigned GAL4-type zinc cluster proteins; GAL4 zinc binuclear cluster h  
 C:Keywords: DNA binding; nucleus; transcription regulation  
 F:44-81/Domain: GAL4 zinc binuclear cluster homology <GAL4>

Query Match 52.6%; Score 41; DB 2; Length 825;  
 Best Local Similarity 66.7%; Pred. No. 1.2e+02;  
 Matches 6; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CRTPEKCD 9  
 ||| |||  
 Db 52 CRSKDKCD 60

RESULT 8  
 A11465  
 problem pbp2-transglycolase/transpeptidase - Chlamydia trachomatis (serotype D, strain C12)  
 C/Species: Chlamydia trachomatis  
 C/Date: 13-Sep-1998 #sequence\_revision 13-Sep-1998 #text\_change 08-Oct-1999  
 C/Accession: A11465  
 R/Stephens, R.S.; Kalan, S.; Lammel, C.J.; Fan, J.; Marrathe, R.; Aravind, L.; Mitchell, Science 282, 754-759, 1998  
 A/Title: Genome sequence of an obligate intracellular pathogen of humans: Chlamydia trachomatis  
 A/Reference number: A11570; MUID:99000809; PMID:9784136  
 A/Accession: A11465  
 A/Status: preliminary  
 A/Molecule type: DNA  
 A/Residues: 1-1080 <AAN>  
 A/Cross-references: GB:AE001338; GB:AE001273; NID:g3329126; PIDN:AAC68277.1; PID:g332913  
 A/Experimental source: serotype D, strain UW-3/Cx  
 C/Genetics:  
 A/Gene: pbps

Query Match 52.6%; Score 41; DB 2; Length 1080;  
 Best Local Similarity 60.0%; Pred. No. 1.5e+02;  
 Matches 6; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Oy 1 CRTPEKCDK 10  
 ||: ||: ||:  
 Db 53 CRVPEHCDCR 62

RESULT 9  
 T12727  
 hypothetical protein 11 - Methanobacterium phage psiM2  
 C/Species: Methanobacterium phage psiM2  
 C/Date: 13-Aug-1999 #sequence\_revision 13-Aug-1999 #text\_change 05-May-2000  
 C/Accession: T12727  
 R/Pfister, P.; Wassermann, A.; Stettler, R.; Leisinger, T.  
 submitted to the EMBL Data Library, May 1998  
 A/Description: Archaeophage PsiM2 complete genomic DNA.  
 A/Reference number: Z17578  
 A/Accession: T12727  
 A/Status: translated from GB/EMBL/DBJ

A/Molecule type: DNA  
 A/Residues: 1-216 <PFI>  
 A/Cross-references: EMBL:AF065411; NID:g3249585; PID:g3249596; PIDN:AAC27050.1  
 A/Experimental source: host Methanobacterium thermoautotrophicum strain Marburg  
 C/Superfamily: Methanobacterium phage psiM2 hypothetical protein 11

Query Match 51.3%; Score 40; DB 2; Length 216;  
 Best Local Similarity 53.8%; Pred. No. 57;  
 Matches 7; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

Oy 1 CRTPEKCDKPR 13  
 ||: ||: ||:  
 Db 162 CRHPCEPDENGR 174

RESULT 10  
 BVECLT  
 bacteriophage T4 late gene expression-blocking protein - Escherichia coli (strain K-12)  
 C/Species: Escherichia coli  
 C/Date: 31-Mar-1990 #sequence\_revision 05-Dec-1997 #text\_change 01-Mar-2002  
 C/Accession: H64858; A30386; Q00194  
 R/Baltner, F.R.; Plunkett III, G.; Bloch, C.A.; Perna, N.T.; Burland, V.; Riley, M.; CC  
 A.; Rose, D.J.; Mau, B.; Shao, Y.  
 Science 277, 1453-1462, 1997  
 A/Title: The complete genome sequence of Escherichia coli K-12.  
 A/Reference number: A64720; MUID:97426617; PMID:9278503  
 A/Accession: H64858  
 A/Status: nucleic acid sequence not shown; translation not shown  
 A/Molecule type: DNA  
 A/Residues: 1-297 <BLAT>  
 A/Cross-references: GB:AE000214; GB:U00096; NID:g1787382; PIDN:AAC74223.1; PID:g1787385;  
 A/Experimental source: strain K-12, substrain MG1655  
 R/Kao, C.; Snyder, L.

J. Bacteriol. 170, 2056-2062, 1988  
 A/Title: The 11t gene product which blocks bacteriophage T4 late gene expression is a me  
 A/Reference number: A30386; MUID:88197991; PMID:2452152  
 A/Accession: A30386  
 A/Molecule type: DNA  
 A/Residues: 1-120, 'QVANHGL', 128, 'NV', 131, 'SOGR', 136-297 <KAO>  
 A/Cross-references: GB:M19654; NID:g146626; PIDN:AAA24074.1; PID:g146627  
 A/Experimental source: strain JM101  
 C/Genetics:  
 A/Gene: 11t  
 A/Map position: 25 min  
 A/Genome: cryptic prophage el4  
 A/Function:  
 A/Description: interacts with a short DNA sequence of the major capsid protein gene of b  
 A/Note: may interfere with coordination of protein synthesis and assembly of T4 heads  
 C/Superfamily: bacteriophage T4 late gene expression blocking protein  
 C/Keywords: transmembrane protein; zinc  
 F/61-82/Domain: transmembrane #status predicted <TM1>  
 F/149-178/Domain: transmembrane #status predicted <TM2>  
 F/160,164/Binding site: zinc (His) #status predicted  
 F/161/Active site: Glu #status predicted

Query Match 51.3%; Score 40; DB 1; Length 297;  
 Best Local Similarity 54.5%; Pred. No. 73;  
 Matches 6; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

Oy 1 CRTPEKCDK 11  
 ||: ||: ||:  
 Db 123 CESWPKCKPR 133

RESULT 11  
 C96757  
 hypothetical protein T18K17.20 (imported) - Arabidopsis thaliana  
 C/Species: Arabidopsis thaliana (mouse-ear cress)  
 C/Date: 02-Mar-2001 #sequence\_revision 02-Mar-2001 #text\_change 31-Mar-2001  
 C/Accession: C96757  
 R/Theologis, A.; Ecker, J.R.; Palm, C.J.; Federpiel, N.A.; Kaul, S.; White, O.; Alonso,  
 Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K.;  
 ansen, N.F.; Hughes, B.; Huitzel, L.  
 Nature 408, 816-820, 2000  
 A/Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Klm, C.  
 C.A.; Li, J.H.; Li, Y.; Lin, X.; Liu, S.X.; Liu, Z.A.; Lueros, J.S.; Maiti, R.; Marziani,  
 Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.  
 A/Authors: Salzberg, S.L.; Schwartz, J.R.; Shin, P.; Southwick, A.M.; Sun, H.; Tallon,  
 ker, M.; Wu, D.; Yu, G.; Fraser, C.M.; Venter, J.C.; Davis, R.W.  
 A/Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis.  
 A/Reference number: A86141; MUID:21016719; PMID:11130712  
 A/Accession: C96757  
 A/Status: preliminary  
 A/Molecule type: DNA  
 A/Residues: 1-403 <STO>  
 A/Cross-references: GB:AE005173; NID:g6598867; PIDN:AAF18721.1; GSPDB:GN00141  
 C/Genetics:  
 A/Gene: T18K17.20  
 A/Map position: 1

Query Match 51.3%; Score 40; DB 2; Length 403;  
 Best Local Similarity 63.6%; Pred. No. 94;  
 Matches 7; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

Oy 2 RTPEKCDKPR 12  
 ||: ||: ||:  
 Db 102 RWRSSCDLPR 112

RESULT 12  
 T51372  
 hypothetical protein F1M13.30 - Arabidopsis thaliana  
 C/Species: Arabidopsis thaliana (mouse-ear cress)  
 C/Date: 18-Aug-2000 #sequence\_revision 18-Aug-2000 #text\_change 18-Aug-2000  
 C/Accession: T51372  
 R/Sato, S.; Nakamura, Y.; Kaneko, T.; Kato, T.; Asamizu, E.; Kotani, H.; Tabata, S.; Ban

submitted to the Protein Sequence Database, August 2000  
A:Reference number: Z25393

A:Accession: T51372  
A:Status: preliminary  
A:Molecule type: DNA  
A:Residues: 1-526 <SAT>  
A:Cross-references: EMBL:AL391145  
A:Experimental source: cultivar Columbia; BAC clone FIN13  
C:Genetics:  
A:Map position: 5  
A:Introns: 277/3  
A:Note: FIN13\_30

Query Match 51.3%; Score 40; DB 2; Length 526;  
Best Local Similarity 70.0%; Pred. No. 1.2e+02;  
Matches 7; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 2 RTKPEKCDKP 11  
DB 231 RWKPEKCDLP 240

## RESULT 13

TFPDS  
protein-tyrosine kinase (EC 2.7.1.112) src2 - fruit fly (Drosophila melanogaster)

C:Species: Drosophila melanogaster  
C:Date: 31-Mar-1989 #sequence\_revision 31-Mar-1989 #text\_change 11-Jun-1999  
C:Accession: A27807  
R:Gregory, R.J.; Kammermeyer, K.L.; Vincent III, W.S.; Wadsworth, S.G.  
Mol. Cell. Biol. 7, 2119-2127, 1987  
A:Title: Primary sequence and developmental expression of a novel Drosophila melanogaster  
A:Reference number: A27807; MUID:87257924; PMID:3110602  
A:Accession: A27807  
A:Molecule type: mRNA

A:Residues: 1-590 <GR>  
A:Cross-references: GB:M6599; NID:G158498; PTDN:AAA28912.1; PID:G158499  
A:Note: the gene is designated as Dsrc28C

C:Genetics:

A:Gene: src2

A:Cross-references: FlyBase:FBgn0003502

A:Map position: 29A  
C:Superfamily: protein-tyrosine kinase src; protein kinase homology; SH2 homology; SH3 h  
C:Keywords: ATP; autophosphorylation; phosphoprotein; phosphotransferase; transforming P  
F:152-201/Domain: SH3 homology <SH3>  
F:214-307/Domain: SH2 homology <SH2>  
F:328-588/Domain: protein kinase homology <KIN>  
F:336-344/Region: protein kinase ATP-binding motif  
F:358/Active site: Lys #status predicted  
F:481/Binding site: phosphate (Tyr) (covalent) (by autophosphorylation) #status predicted

Query Match 51.3%; Score 40; DB 1; Length 590;  
Best Local Similarity 54.5%; Pred. No. 1.3e+02;  
Matches 6; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 CRTKPEKCDKP 11  
DB 301 CRTKSPCDKP 311

## RESULT 14

148689

gene NK10 protein - mouse

C:Species: Mus musculus (house mouse)

C:Date: 02-Jul-1996 #sequence\_revision 02-Jul-1996 #text\_change 01-Dec-2000

C:Accession: I48689; S49078

R:Lang, R.; Christoph, A.; Thiesen, H.J.; Vopper, G.; Johnson, K.R.; Lemaire, L.; Ploma  
DNA Cell Biol. 14, 971-981, 1995

A:Title: Developmentally regulated mouse gene NK10 encodes a zinc finger Repressor Prot  
A:Reference number: I48689; MUID:96069544; PMID:7576184

A:Accession: I48689

A:Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-636 <RES>

A:Cross-references: EMBL:X79828; NID:G506501; PTDN:CAA56225.1; PID:G506502  
C:Superfamily: zinc finger protein ZFP-36; LIM metal-binding repeat homology

Query Match 51.3%; Score 40; DB 2; Length 636;  
Best Local Similarity 58.3%; Pred. No. 1.4e+02;  
Matches 7; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 2 RTKPEKCDKPRR 13  
DB 204 KKKPYKCDKCRK 215

## RESULT 15

B47447

calcium channel protein alpha-1 chain (variant doe-4) - electric ray (Discopyge ommata)

C:Species: Discopyge ommata

C:Date: 21-Jan-1994 #sequence\_revision 18-Nov-1994 #text\_change 13-Sep-1998

C:Accession: B47447

R:Horne, W.A.; Elliott, P.T.; Inman, I.; Zhou, M.; Tsien, R.W.; Schwarz, T.L.  
Proc. Natl. Acad. Sci. U.S.A. 90, 3787-3791, 1993

A:Title: Molecular diversity of Ca(2+) channel alpha 1 subunits from the marine ray Disc

A:Reference number: A47447; MUID:93248175; PMID:7683405

A:Accession: B47447

A:Status: preliminary; not compared with conceptual translation

A:Molecule type: mRNA

A:Note: sequence extracted from NCBI backbone (NCBI:130673)

C:Superfamily: voltage-dependent calcium channel protein alpha-1 chain

Query Match 51.3%; Score 40; DB 2; Length 2326;  
Best Local Similarity 60.0%; Pred. No. 4e+02;  
Matches 6; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 4 RPEKCDKPRR 13  
DB 838 QPESCEAPRR 847

Search completed: January 30, 2004, 11:46:14  
Job time : 6.6 secs



FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CARBOHYD 100 100 N-LINKED (GLUCNA. . .) (POTENTIAL).  
 SQ SEQUENCE 146 AA, 17247 MW, 4E792CB57F91760 CRC64;  
 Query Match 66.0%; Score 51.5; DB 1; Length 146;  
 Best Local Similarity 61.1%; Pred. No. 0.15;  
 Matches 11; Conservative 0; Mismatches 2; Indels 5; Gaps 1;

Qy 1 CRTK-----PEKDXPRR 13  
 Db 129 CRPKDKARQEKCDKPRR 146

## RESULT 2

QUTA\_EMENTI STANDARD; PRT; 825 AA.  
 AC P10563;  
 DT 01-JUL-1989 (Rel. 11, Created)  
 DT 01-JUL-1989 (Rel. 11, Last sequence update)  
 DT 01-APR-1993 (Rel. 25, Last annotation update)  
 DE Quinic acid utilization activator.  
 GN QUTA.  
 OS Emericella nidulans (Aspergillus nidulans).  
 OC Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes;  
 OC Eurotiales; Trichocommataceae; Emericella.  
 NC NCB1\_Taxid=162425;  
 RN (1)  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=88040423; Pubmed=3313276;  
 RA Berr R.K., Whittington H., Roberts C.P., Hawkins A.R.;  
 RT "Isolation and characterization of the positively acting regulatory  
 gene QUTA from Aspergillus nidulans."  
 RL Nucleic Acids Res. 15:7991-8001(1987).  
 CC -1- FUNCTION: TRANSCRIPTION ACTIVATION OF GENES FOR ENZYMES AND  
 PROTEINS OF QUINATE METABOLISM BY BINDING TO A 16 BASE-PAIR  
 SEQUENCE (CONSENSUS GGATANNNTTATCC) IN FRONT OF EACH QUT GENE.  
 CC -1- SUBCELLULAR LOCATION: Nuclear.  
 CC -1- SIMILARITY: Contains 1 Zn(2)-Cys(6) fungal-type binuclear cluster  
 domain.

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 or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

CC EMBL, X06252; CAA29594.1; -  
 DR PIR, A26983; A26983.  
 DR HSSP, P07272; 1PY1.  
 DR TRNSPAC, T02849; -  
 DR InterPro: IPR001138; Fungi Trn.  
 DR Pfam: PF04082; Fungal trans. 1.  
 DR Pfam: PF00172; Zn\_c1us; 1.  
 DR SMART, SM00066; GAL4; 1.  
 DR PROSITE, PS00463; ZN2\_Cy6\_FUNGAL\_1; 1.  
 DR PROSITE, PS50048; ZN2\_Cy6\_FUNGAL\_2; 1.  
 KW Transcription regulation; Activator; DNA-binding; Nuclear protein;  
 KW Zinc; Metal-binding; Quinate metabolism.  
 FT DNA\_BIND 49 76  
 SQ SEQUENCE 825 AA, 90408 MW, AESC31848BFAA792 CRC64;

Query Match 52.6%; Score 41; DB 1; Length 825;  
 Best Local Similarity 66.7%; Pred. No. 39;  
 Matches 6; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CRTPEKCD 9  
 Db 52 CRSKDKCD 60

## RESULT 3

ID\_RIN4\_ARATH STANDARD; PRT; 211 AA.  
 AC Q8GYN5; Q9LSG9;  
 DT 15-SEP-2003 (Rel. 42, Created)  
 DT 15-SEP-2003 (Rel. 42, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Rpm1-interacting protein 4.  
 GN RIN4 OR ATG325070 OR MTL12\_1.  
 OS Arabidopsis thaliana (Mouse-ear cress).  
 OC Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;  
 OC Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;  
 OC eurosids II; Brassicales; Brassicaceae; Arabidopsis.  
 NC NCB1\_Taxid=3702;  
 RN (1)  
 RP SEQUENCE FROM N.A., FUNCTION, SUBCELLULAR LOCATION, PHOSPHORYLATION,  
 RP AND INTERACTION WITH RPM1, AVRPM1 AND AVR8.  
 RC STRAIN=cv. Columbia;  
 RX MEDLINE=21952473; Pubmed=11955429;  
 RA Mackey D., Holt B.F., III, Wild A., Dangl J.L.;  
 RT "RIN4 interacts with Pseudomonas syringae type III effector molecules  
 and is required for RPM1-mediated resistance in Arabidopsis."  
 RL Cell 108:743-754(2002).  
 RN (2)  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=cv. Columbia;  
 RX MEDLINE=20277480; Pubmed=10819329;  
 RA Sato S., Nakamura Y., Kaneko T., Katoh T., Asamizu E., Tabata S.;  
 RT "Structural analysis of Arabidopsis thaliana chromosome 3. I. Sequence  
 features of the regions of 4,504,864 bp covered by sixty P1 and TAC  
 clones."  
 RL DNA Res. 7:131-135(2000).  
 RN (3)  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=cv. Columbia;  
 RA Shinozaki K., Davis R.W., Ecker J.R., Theologis A.;  
 RT "Riken Arabidopsis full length cDNA clones (RAFL) sequenced by the  
 SSP consortium (Salk/Stanford/PGSC)."  
 RL Submitted (NOV-2002) to the EMBL/Genbank/DBJ databases.  
 RN (4)  
 RP FUNCTION, SUBCELLULAR LOCATION, AND INTERACTION WITH AVRPM2 AND RPS2.  
 RX MEDLINE=22469031; Pubmed=12581526;  
 RA Atreil M.J., Steakiewicz B.J.;  
 RT "Initiation of RPS2-specified disease resistance in Arabidopsis is  
 coupled to the AvrRpt2-directed elimination of RIN4."  
 RL Cell 112:369-377(2003).  
 RN (5)  
 RP FUNCTION, AND INTERACTION WITH AVRPM2.  
 RX MEDLINE=22469032; Pubmed=12581527;  
 RA Mackey D., Belkhabir Y., Alonso J.M., Ecker J.R., Dangl J.L.;  
 RT "Arabidopsis RIN4 is a target of the type III virulence effector  
 AvrRpt2 and modulates RPS2-mediated resistance."  
 RL Cell 112:379-389(2003).

CC -1- FUNCTION: Essential regulator of plant defense, which plays a  
 central role in resistance in case of infection by a pathogen. It  
 is a common target for both type III avirulence proteins from  
 Pseudomonas syringae (AvrB, AvrPm1 and AvrRpt2) and for the plant  
 Resistance (R) proteins RPM1 and RPS2. In strains carrying the  
 appropriate R gene for avirulence proteins of the pathogen, its  
 association with avirulence proteins triggers a defense system  
 including the hypersensitive response, which limits the spread of  
 disease. In contrast, in plants lacking appropriate R genes, its  
 association with avirulence proteins of the pathogen impairs the  
 defense system and leads to the pathogen multiplication.  
 CC SUBUNIT: Interacts with the unrelated avirulence proteins AVR8,  
 AVRPM1 and AVRPM2 from Pseudomonas syringae. Interacts with the  
 N-terminal domain of RPM1. Interacts indirectly with RPS2. Its  
 association with AVR8 and AVRPM1 results in its phosphorylation,  
 which is in turn recognized by the resistance RPM1 protein,  
 leading to the activation of RPM1-dependent disease resistance  
 response. On the other hand, its association with AVRPM2 results

CC in its destruction, which activates RPS2-dependent disease  
 CC resistance responses.  
 CC -1- SUBCELLULAR LOCATION: Cytoplasmic; membrane-associated.  
 CC -1- PTM: Phosphorylated following the interaction with AvrRpm1 or  
 CC AVR.  
 CC -1- SIMILARITY: Belongs to the RIN4 family.  
 CC -1- CAUTION: Ref.2 sequence differs from that shown due to erroneous  
 CC gene model prediction.  
 CC -----  
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 CC -----  
 CC EMBL; AB026647; BAB02065.1; ALT. SEQ.  
 CC EMBL; AK117488; BAC42151.1; -  
 CC Plant defense; Membrane; Phosphorylation.  
 CC KW  
 CC SEQUENCE 211 AA; 23371 MW; AB31ECF840AEA09 CRC64;  
 SQ  
 Query Match 51.3%; Score 40; DB 1; Length 211;  
 Best Local Similarity 66.7%; Pred. No. 15;  
 Matches 8; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
 QY 2 RTKPEKCKP 13  
 Db 61 RTKPEQVDVTRR 72  
 RESULT 4  
 LIT\_ECOLI STANDARD; PRT; 297 AA.  
 ID P11072; P77283;  
 DT 01-JUL-1989 (Rel. 11, Created)  
 DT 01-NOV-1997 (Rel. 35, Last sequence update)  
 DT 16-OCT-2001 (Rel. 40, Last annotation update)  
 DE Bacteriophage T4 late gene expression blocking protein (GPLIT).  
 GN LIT OR B1139.  
 OS Escherichia coli.  
 OC Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;  
 OC Enterobacteriaceae; Escherichia.  
 OC NCBI\_TaxID=562;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=JM101;  
 RX MEDLINE=88197991; PubMed=2452152;  
 RA Kao C., Snyder L.;  
 RT "The lit gene product which blocks bacteriophage T4 late gene  
 RT expression is a membrane protein encoded by a cryptic DNA element.  
 RT e14.";  
 RL J. Bacteriol. 170:2056-2062(1988).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=K12 / MG1655;  
 RX MEDLINE=97426617; PubMed=9278503;  
 RA Blattner F.R., Plunkett G. III, Bloch C.A., Perna N.T., Burland V.,  
 RA Riley M., Collado-Vides J., Glasner J.D., Rode C.K., Mayhew G.F.,  
 RA Gregor J., Davis N.W., Kirkpatrick H.A., Goeden M.A., Rose D.J.,  
 RA Mau B., Shao Y.;  
 RT "The complete genome sequence of Escherichia coli K-12.";  
 RT Science 277:123-147(1997).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=K12;  
 RX MEDLINE=97061202; PubMed=8905232;  
 RA Oshima T., Alba H., Baba T., Fujita K., Hayaishi K., Honjo A.,  
 RA Ikemoto K., Inada T., Itoh T., Kajihara M., Kanai K., Kashimoto K.,  
 RA Kikura S., Kikugawa M., Makino K., Masuda S., Miki T., Mizobuchi K.,  
 RA Mori H., Motomura Y., Nakamura Y., Nishimoto H., Nishio Y., Saito N.,  
 RA Sempel G., Seki Y., Tagami H., Takemoto K., Wada C., Yamamoto Y.,  
 RA Yano M., Horiiuchi T.;

RT "A 718-kb DNA sequence of the Escherichia coli K-12 genome  
 RT corresponding to the 12.7-28.0 min region on the linkage map.";  
 RL DNA Res. 3:137-155(1996).  
 CC -1- FUNCTION: INTERACTS WITH A SHORT DNA SEQUENCE ABOUT ONE-QUARTER  
 CC OF THE WAY INTO THE MAJOR CAPSID PROTEIN GENE 23 OF T4, AND THE  
 CC INHIBITION OCCURS WHEN THIS LATE GENE OF THE VIRUS IS EXPRESSED.  
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 CC -----  
 CC EMBL; M19634; AAA24074.1; -  
 CC EMBL; AB000214; AAC74223.1; -  
 CC EMBL; D90748; BAA35959.1; -  
 CC EMBL; D90749; BAA35968.1; -  
 CC PIR; H64858; BVCLT.  
 CC MEROPS; U49.001; -  
 CC DR Ecogene; EGI0535; lit.  
 CC KW Inner membrane; Transmembrane; Complete proteome.  
 CC FT TRANSMEM 61 82  
 CC FT TRANSMEM 149 178  
 CC FT CONFLICT 121 135  
 CC FT CONFLICT 121 135  
 CC REF. 1).  
 SQ SEQUENCE 297 AA; 33762 MW; 8A06C0B82FBB1AF CRC64;  
 Query Match 51.3%; Score 40; DB 1; Length 297;  
 Best Local Similarity 54.5%; Pred. No. 21;  
 Matches 6; Conservative 2; Mismatches 3; Indels 0; Gaps 0;  
 QY 1 CRTKPEKCKP 11  
 Db 123 CESWPKCKP 133  
 RESULT 5  
 ZP90\_MOUSE STANDARD; PRT; 636 AA.  
 ID ZP90\_MOUSE  
 AC Q61967;  
 DT 01-NOV-1997 (Rel. 35, Created)  
 DT 01-NOV-1997 (Rel. 35, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Zinc finger protein 90 (Zfp-90) (zinc finger protein NK10).  
 GN ZFP90 OR NK10.  
 GN Mus musculus (Mouse).  
 OS Mus musculus (Mouse).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
 OC NCBI\_TaxID=10090;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=C57BL/6; TISSUE=Brain;  
 RX MEDLINE=96069544; PubMed=7576184;  
 RA Lange R., Christoph A., Thiesen H.-J., Vopper G., Johnson K.R.,  
 RA Lemaire L., Plomann M., Cremer H., Barthels D., Heinelein U.A.O.;  
 RT "Developmentally regulated mouse gene NK10 encodes a zinc finger  
 RT repressor protein with differential DNA-binding domains.";  
 RL DNA Cell Biol. 14:971-981(1995).  
 CC -1- FUNCTION: MAY FUNCTION AS A REPRESSOR OR SILENCER PROTEIN, AND  
 CC MOST LIKELY EXERTS ITS REPRESSING ACTIVITY UPON ZINC-DEPENDENT  
 CC BINDING TO DNA. MAY BE INVOLVED IN PROPER SPERMATOGENESIS BY  
 CC REPRESENTING THE EXPRESSION OF GENES UNNECESSARY OR INCOMPATIBLE  
 CC WITH THE MAINTENANCE OF A HAPLOID CELL STATE.  
 CC -----  
 CC -1- SUBCELLULAR LOCATION: Nuclear.  
 CC -1- TISSUE SPECIFICITY: BRAIN, HEART, SPLEEN, THYMUS, AND TESTIS.  
 CC -1- DEVELOPMENTAL STAGE: THERE IS A MARKED INCREASE AFTER POSTNATAL  
 CC STAGES 18-20 (SIMULTANEOUSLY TO THE APPEARANCE OF HAPLOID CELL  
 CC STAGES). MAXIMAL EXPRESSION IS OBSERVED AROUND 2 WEEKS  
 CC POSTNATALLY, WITH THE EXCEPTION OF BRAIN AND TESTIS, WHERE THE  
 CC EXPRESSION IS HIGHEST IN EARLIER DEVELOPMENTAL STAGES.  
 CC -1- SIMILARITY: BELONGS TO THE KRUEPPEL FAMILY OF C2H2-TYPE ZINC-

CC FINGER PROTEINS.  
 CC -1- SIMILARITY: Contains 1 KRAB domain.  
 CC -----  
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 CC -----  
 CC EMBL; X79828; CAA56225.1; -  
 CC PIR; I48689; I48689.  
 CC HSSP; P08047; I5P2.  
 CC MGI; MGI:104786; Zfp90.  
 CC InterPro; IPR001909; KRAB.  
 CC InterPro; IPR007087; Znf\_C2H2.  
 CC InterPro; IPR007086; Znf\_C2H2\_sub.  
 CC Pfam; PF01352; KRAB; 1.  
 CC Pfam; PF00096; zf-C2H2; 13.  
 CC PRINTS; PR00048; ZINC\_FINGER.  
 CC ProDom; PD000003; Znf\_C2H2; 7.  
 CC SMART; SM00349; KRAB; 1.  
 CC SMART; SM00355; Znf\_C2H2; 13.  
 CC PROSITE; PS50805; KRAB; 1.  
 CC PROSITE; PS50028; ZINC\_FINGER\_C2H2\_1; 13.  
 CC PROSITE; PS50157; ZINC\_FINGER\_C2H2\_2; 13.  
 CC Zinc-finger; Metal-binding; DNA-binding; Nuclear protein; Repeat;  
 CC Transcription regulation; Repressor.  
 CC KW DOMAIN 14 85  
 CC FT ZN\_FING 208 230 C2H2-TYPE.  
 CC FT ZN\_FING 250 272 C2H2-TYPE.  
 CC FT ZN\_FING 278 300 C2H2-TYPE.  
 CC FT ZN\_FING 306 328 C2H2-TYPE.  
 CC FT ZN\_FING 334 356 C2H2-TYPE.  
 CC FT ZN\_FING 362 384 C2H2-TYPE.  
 CC FT ZN\_FING 390 412 C2H2-TYPE.  
 CC FT ZN\_FING 446 468 C2H2-TYPE.  
 CC FT ZN\_FING 494 516 C2H2-TYPE.  
 CC FT ZN\_FING 522 544 C2H2-TYPE.  
 CC FT ZN\_FING 550 572 C2H2-TYPE.  
 CC FT ZN\_FING 578 600 C2H2-TYPE.  
 CC FT ZN\_FING 606 628 C2H2-TYPE.  
 CC SQ SEQUENCE 636 AA; 72423 MW; 1265BEC7729E369F CRC64;  
 CC  
 CC Query Match 51.3%; Score 40; DB 1; Length 636;  
 CC Best Local Similarity 58.3%; Pred. No. 44;  
 CC Matches 7; Conservative 2; Mismatches 3; Indels 0; Gaps 0;  
 CC  
 CC QY 2 RTKPKCKDKPR 13  
 CC DB 204 KKKPKCKDKCRK 215  
 CC  
 CC RESULT 6  
 CC BTKL\_DROME STANDARD: PRT: 786 AA.  
 CC ID BTKL\_DROME 076132; 076133; P11361; Q8T0A0; Q9VLO2; Q9VLO3;  
 CC AC P08630; O45032; O76132; P11361; Q8T0A0; Q9VLO2; Q9VLO3;  
 CC DT 01-AUG-1988 (Rel. 08; Created)  
 CC DT 28-FEB-2003 (Rel. 41; Last sequence update)  
 CC DT 15-SEP-2003 (Rel. 42; Last annotation update)  
 CC DE Tyrosine-protein kinase Btk29A (EC 2.7.1.112) (Dsr286C).  
 CC GN BTK29A OR SRC29A OR SRC2 OR TEC29 OR CG8049.  
 CC OS Drosophila melanogaster (Fruit fly).  
 CC OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;  
 CC Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;  
 CC Ephydriidae; Drosophilidae; Drosophila.  
 CC NCBI\_Taxid=7227;  
 CC RN [1]  
 CC RP SEQUENCE FROM N.A. (ISOFORM 1).  
 CC RX MEDLINE=87257924; PubMed=3110602;  
 CC RA Gregory R.J., Kammermeyer K.L., Vincent W.S. III, Wadsworth S.G.;  
 CC "Primary sequence and developmental expression of a novel Drosophila

RT melanogaster src gene.";  
 RL Mol. Cell. Biol. 7:2119-2127(1987).  
 RN [2]  
 RP SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.  
 RC STRAIN=Canton-S, and Oregon-R. TISSUE=Head;  
 RX MEDLINE=99263011; PubMed=10330180;  
 RA Baba K., Takeshita A., Majima K., Ueda R., Kondo S., Juni N.,  
 RA Yamamoto D.;  
 RT "The Drosophila Bruton's tyrosine kinase (Btk) homolog is required for  
 RT adult survival and male genital formation.";  
 RL Mol. Cell. Biol. 19:4405-4413(1999).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=Berkley;  
 RX MEDLINE=20196006; PubMed=10731132;  
 RA Adams M.D., Celisner S.E., Holt R.A., Evans C.A., Gocayne J.D.,  
 RA Amaratunga P.G., Scherer S.E., Li P.W., Hoskins R.A., Gale R.F.,  
 RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,  
 RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,  
 RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,  
 RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,  
 RA Abil J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,  
 RA Ballew R.M., Baer A., Baxendale J., Bayraktaroglu L., Beasley E.M.,  
 RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,  
 RA Borkova D., Botchan M.R., Bouck J., Brothier P., Brotler P.,  
 RA Burris K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,  
 RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,  
 RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,  
 RA Dodson K., Dou P.L.E., Downes M., Dugan-Kocha S., Dunlov B.C., Dunn P.,  
 RA Durbin K.J., Evangelista C.C., Ferraz C., Ferreira S., Fleischmann W.,  
 RA Fostler C., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,  
 RA Harris N.L., Harvey D., Heilmann T.J., Hernandez J.R., Houck J.,  
 RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwa C.,  
 RA Jaitli M., Kalush F., Karpen G.H., Ke Z., Kemison J.A., Ketchum K.A.,  
 RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,  
 RA Laoko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,  
 RA Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D.,  
 RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,  
 RA Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,  
 RA Nelson D.R., Nelson K.A., Nixon K., Nusken D.R., Pacleb J.M.,  
 RA Palazolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,  
 RA Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,  
 RA Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,  
 RA Spier E., Spradling A.C., Stapleton M., Strong R., Sun E.,  
 RA Svrtkars R., Tector C., Turner R., Venter E., Wang A.H., Wang X.,  
 RA Wang Z.-Y., Wasserman D.A., Weinstock G.M., Weisenbach J.,  
 RA Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,  
 RA Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L.,  
 RA Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith H.O.,  
 RA Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.;  
 RT "The genome sequence of Drosophila melanogaster.";  
 RL Science 287:2185-2195(2000).  
 RN [4]  
 RP REVISIONS, AND ALTERNATIVE SPLICING.  
 RC STRAIN=Berkley;  
 RX MEDLINE=22426069; PubMed=12537572;  
 RA Misra S., Crosby M.A., Mungall C.J., Matthews B.B., Campbell K.S.,  
 RA Hradecky P., Huang Y., Kaminker J.S., Millburn G.H., Prochownik S.E.,  
 RA Smith C.D., Tupy J.L., Whitfield E.J., Bayraktaroglu L., Berman B.P.,  
 RA Betancourt B.R., Celisner S.E., de Grey A.D.N.J., Drysdale R.A.,  
 RA Harris N.L., Richter J., Russo S., Schroeder A.J., Shu S.O.,  
 RA Stapleton M., Yamada C., Ashburner M., Gelbart W.M., Rubin G.M.,  
 RA Lewis S.E.;  
 RT "Annotation of the Drosophila melanogaster euchromatic genome: a  
 RT systematic review.";  
 RL Genome Biol. 3:RESEARCH0083.1-RESEARCH0083.22(2002).  
 RN [5]  
 RP SEQUENCE FROM N.A. (ISOFORMS 1 AND 2).  
 RC STRAIN=Berkley; TISSUE=Embryo;  
 RX MEDLINE=22426066; PubMed=12537569;  
 RA Stapleton M., Carlson J.W., Brokstein P., Yu C., Champe M.,  
 RA George R.A., Guarin H., Kronmiller B., Pacleb J.M., Park S., Wan K.H.,



RA Rubin G.M., Celniker S.E.;  
 RT "A Drosophila full-length cDNA resource.";  
 RL Genome Biol. 3:RESEARCH0080.1-RESEARCH0080.8(2002).  
 RN [6]  
 RP SEQUENCE OF 199-789 FROM N.A. (ISOFORM 1).  
 RC TISUB=eye-antennal disk;  
 RX MEDLINE=98325396; PubMed=9660966;  
 RA Guarnieri D.J., Dodson G.S., Simon M.A.;  
 RT "SRC64 regulates the localization of a Tec-family kinase required  
 for Drosophila ring canal growth.";  
 RL Mol. Cell 1:831-840(1998).  
 RN [7]  
 RP SEQUENCE OF 552-684 FROM N.A.  
 RX MEDLINE=85215606; PubMed=3923437;  
 RA Madeworth S.C., Madhavan K., Bildeau-Wentworth D.;  
 RT "Maternal inheritance of transcripts from three Drosophila src-related  
 genes.";  
 RL Nucleic Acids Res. 13:2153-2170(1985).  
 RN [8]  
 RP FUNCTION, AND TISSUE SPECIFICITY.  
 RX MEDLINE=98322240; PubMed=9655810;  
 RA Dodson G.S., Guarnieri D.J., Simon M.A.;  
 RT "Src64 is required for ovarian ring canal morphogenesis during  
 Drosophila oogenesis.";  
 RL Development 125:2883-2892(1998).  
 RN [9]  
 RP SIMILARITY WITH BTK SUBFAMILY.  
 RA Sjolander K.;  
 RL Unpublished observations (JUL-1997).  
 CC -1- FUNCTION: Required for proper ring canal development. Also  
 required for the development of male genitalia and for adult  
 survival.  
 CC -1- CATALYTIC ACTIVITY: ATP + a protein tyrosine = ADP + protein  
 tyrosine phosphate.  
 CC -1- SUBCELLULAR LOCATION: Ring canals.  
 CC -1- ALTERNATIVE PRODUCTS:  
 Event=Alternative splicing; Named isoforms=2;  
 Name=2;  
 CC Name=1; IsoId=P08630-1; Sequence=Displayed;  
 CC Name=1; IsoId=P08630-2; Sequence=VSP\_004964, VSP\_004965;  
 CC -1- TISSUE SPECIFICITY: Ring canals in the egg chambers and imaginal  
 disks of third-instar larvae.  
 CC -1- DEVELOPMENTAL STAGE: Expressed both maternally and zygotically.  
 CC -1- Predominantly in early to middle embryogenesis, in larvae and  
 adult females.  
 CC -1- SIMILARITY: BELONGS TO THE TYR FAMILY OF PROTEIN KINASES. TEC  
 SUBFAMILY.  
 CC -1- SIMILARITY: Contains 1 PH domain.  
 CC -1- SIMILARITY: Contains 1 SH2 domain.  
 CC -1- SIMILARITY: Contains 1 SH3 domain.  
 CC -1- CAUTION: Ref1 sequence differs from that shown due to frameshifts  
 in positions in the N-terminal sequence of isoform 1 and in  
 positions 222-245.  
 CC -----  
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 or send an email to [license@sib-sib.ch](mailto:license@sib-sib.ch)).  
 CC -----  
 CC EMBL, M16589, AAA28912.1; ALT\_FRAME.  
 DR EMBL, AB009840, BAA24063.1; -  
 DR EMBL, AB009841, BAA24064.1; -  
 DR EMBL, AE003620, AAF52631.3; -  
 DR EMBL, AE003620, AAF52632.2; -  
 DR EMBL, AY069457, AAL39602.1; -  
 DR EMBL, AY128441, AAM75034.1; -  
 DR EMBL, AF044337, AAB99858.1; -  
 DR EMBL, X02305, CAA26170.1; -  
 DR PIR, A23051, A23051.

DR HSBP; P11362; IFCK.  
 DR FLYBase; FBgn0003502; Btk29A.  
 DR GO; GO:0005737; C:cytosol; IDA.  
 DR GO; GO:0005886; C:plasma membrane; IDA.  
 DR GO; GO:0045172; C:ring canal (sensu Drosophila); IEP.  
 DR GO; GO:0004713; F:protein tyrosine kinase activity; ISS.  
 DR GO; GO:0007620; P:catalysis; NAS.  
 DR GO; GO:0007619; P:cellular behavior; NAS.  
 DR GO; GO:0008340; P:determination of adult life span; IMP.  
 DR GO; GO:0008258; P:head invagination; IMP.  
 DR GO; GO:0007485; P:male genital morphogenesis (sensu Holometab. . .); IMP.  
 DR GO; GO:0006468; P:protein amino acid phosphorylation; ISS.  
 DR GO; GO:0007301; P:ring canal formation; IEP.  
 DR InterPro; IPR001849; PH.  
 DR InterPro; IPR002290; Ser\_Chr\_kinase.  
 DR InterPro; IPR000980; SH2.  
 DR InterPro; IPR001452; SH3.  
 DR InterPro; IPR001452; Tyr\_kinase.  
 DR Pfam; PF00169; PH; 1.  
 DR Pfam; PF00069; Kinase; 1.  
 DR Pfam; PF00017; SH2; 1.  
 DR Pfam; PF00018; SH3; 1.  
 DR PRINTS; PR00401; SH2DOMAIN.  
 DR PRINTS; PR00109; TYRKINASE.  
 DR ProDom; PD000001; Prot\_kinase; 1.  
 DR ProDom; PD000093; SH2\_1.  
 DR ProDom; PD000066; SH3; 1.  
 DR SMART; SM00233; PH; 1.  
 DR SMART; SM00220; S\_TKC; 1.  
 DR SMART; SM00252; SH2; 1.  
 DR SMART; SM00326; SH3; 1.  
 DR SMART; SM00219; TyrKc; 1.  
 DR PROSITE; PS50003; PH\_DOMAIN; 1.  
 DR PROSITE; PS00107; PROTEIN\_KINASE\_ATP; 1.  
 DR PROSITE; PS00109; PROTEIN\_KINASE\_TYR; 1.  
 DR PROSITE; PS50011; PROTEIN\_KINASE\_DOM; 1.

Query Match 51.3%; Score 40; DB 1; Length 786;  
 Best Local Similarity 54.5%; Pred. No. 54;  
 Matches 6; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Qy 1 CRTPEKCDK 11  
 Db 497 CRKSSPCDR 507

RESULT 7  
 CCAB DISOM STANDARD; PRT; 2326 AA.  
 AC P56658;  
 DT 15-JUL-1999 (Rel. 38, Created)  
 DT 15-JUL-1999 (Rel. 38, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Probable voltage-dependent N-type calcium channel alpha-1B subunit  
 (DBE-4).  
 OS Discopage ommata (Electric ray).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Chondrichthyes;  
 OC Elasmobranchii; Squalae; Hymnosqualae; Pristigastera; Batoidae;  
 OC Torpediniformes; Narcinoidae; Narcinidae; Discopage.  
 OC NCBI\_TaxID=7785;  
 RN [1]  
 RP SEQUENCE FROM N.A. (ISOFORMS 1 AND 2).  
 RC TISUB=Electric lobe;  
 RX MEDLINE=93248175; PubMed=7683405;  
 RA Horne W.A., Billnor P.T., Inman I., Zhou M., Tsien R.W., Schwarz T.L.;  
 RT "Molecular diversity of Ca2+ channel alpha 1 subunits from the marine  
 ray Discopage ommata.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 90:3787-3791(1993).  
 CC -1- FUNCTION: THE ISOFORM ALPHA-1B GIVES RISE TO N-TYPE CALCIUM  
 CURRENTS. N-TYPE CALCIUM CHANNELS BELONG TO THE "HIGH-VOLTAGE  
 ACTIVATED" (HVA) GROUP (BY SIMILARITY).  
 CC -1- SUBUNIT: VOLTAGE-DEPENDENT CALCIUM CHANNELS ARE MULTISUBUNIT

CC COMPLEXES, CONSISTING OF ALPHA-1, ALPHA-2, BETA AND DELTA SUBUNITS  
 CC IN A 1:1:1:1 RATIO. THE CHANNEL ACTIVITY IS DIRECTED BY THE PORE-  
 CC FORMING AND VOLTAGE-SENSITIVE ALPHA-1 SUBUNIT. IN MANY CASES, THIS  
 CC SUBUNIT IS SUFFICIENT TO GENERATE VOLTAGE-SENSITIVE CALCIUM  
 CC CHANNEL ACTIVITY. THE AUXILIARY SUBUNITS BETA AND ALPHA-2/DELTA  
 CC LINKED BY A DISULFIDE BRIDGE REGULATE THE CHANNEL ACTIVITY (BY  
 CC SIMILARITY).  
 CC -1- SUBCELLULAR LOCATION: Integral membrane protein (by similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=2;  
 CC Comment=Additional isoforms seem to exist;  
 CC Name=1;  
 CC IsoId=P56698-1; Sequence=Displayed;  
 CC Name=2;  
 CC IsoId=P56698-2; Sequence=VSP 000884;  
 CC -1- TISSUE SPECIFICITY: EXPRESSION IS HIGHER IN THE ELECTRIC LOBE THAN  
 CC IN THE FOREBRAIN.  
 CC -1- DOMAIN: EACH OF THE FOUR INTERNAL REPEATS CONTAINS FIVE  
 CC HYDROPHOBIC TRANSMEMBRANE SEGMENTS (S1, S2, S3, S5, S6) AND ONE  
 CC POSITIVELY CHARGED TRANSMEMBRANE SEGMENT (S4). S4 SEGMENTS  
 CC PROBABLY REPRESENT THE VOLTAGE-SENSOR AND ARE CHARACTERIZED BY A  
 CC SERIES OF POSITIVELY CHARGED AMINO ACIDS AT EVERY THIRD POSITION.  
 CC -1- PTM: PHOSPHORYLATED IN VITRO BY CAM-KINASE II, CAEK, PKC AND GSKP  
 CC (BY SIMILARITY).  
 CC -1- SIMILARITY: BELONGS TO THE CALCIUM CHANNEL ALPHA-1 SUBUNITS  
 CC FAMILY.  
 CC -----  
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 CC DR EMBL; L12532; -; NOT\_ANNOTATED\_CDS.  
 CC DR PIR; B47447; B47447.  
 CC DR InterPro; IPR001682; Ca/Na\_pore.  
 CC DR InterPro; IPR002077; Ca\_channel.  
 CC DR InterPro; IPR002111; Cat\_channel\_TrpL.  
 CC DR InterPro; IPR005821; Ion\_trans.  
 CC DR InterPro; IPR005820; M-channel\_nlg.  
 CC DR InterPro; IPR005447; NMDCA1phal.  
 CC DR InterPro; IPR003915; PKD\_2.  
 CC DR Pfam; PF00520; Ion\_trans\_4.  
 CC DR PRINTS; PR00167; CCHANNEL.  
 CC DR PRINTS; PR01631; NMDCA1PHAL.  
 CC DR PRINTS; PR01433; POLYCYSTIN2.  
 CC DR Ionic channel; Transmembrane; Ion transport; Voltage-gated channel;  
 CC K+ Calcium channel; Glycoprotein; Repeat; Multigene family;  
 CC K+ Calcium-binding; Phosphorylation; Alternative splicing.  
 CC FT REPEAT 75 351 I.  
 CC FT REPEAT 458 702 II.  
 CC FT REPEAT 1134 1416 III.  
 CC FT REPEAT 1453 1708 IV.  
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 CC FT TRANSMEM 89 107 S1 OF REPEAT I (POTENTIAL).  
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 CC FT TRANSMEM 7359 7378 S3 OF REPEAT II (POTENTIAL).  
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Query Match 51.3%; Score 40; DB 1; Length 2907;
Best Local Similarity 58.3%; Pred. No. 2e+02;
Matches 7; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

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QY 1 CRTKPKCDKPR 12
DB 2335 CRTKPGICNGR 2346

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RESULT 9
FBN2_HUMAN STANDARD; PRT; 2911 AA.
AC P3556;
DT 01-JUN-1994 (rel. 29, Created)
DT 01-FEB-1996 (rel. 33, Last sequence update)
DT 28-FEB-2003 (rel. 41, Last annotation update)
DE Fibrillin 2 precursor.
GN FBN2.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=94165150; PubMed=8120105;
RA Zhang H., Apfelroth S.D., Hu W., Davis E.C., Sanguineti C.,
RA Bonadio J., Mecham R.P., Ramirez F.;
RT "Structure and expression of fibrillin-2, a novel microfibrillar

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RT component preferentially located in elastic matrices.";
J. Cell Biol. 124:855-863(1994).
[2]
SEQUENCE OF 752-1505 FROM N.A.
MEDLINE=91304567; PubMed=1852206;
RX Lee B., Godfrey M., Vitale E., Horl H., Mattei M.-G., Sarfraz M.,
RA Tsipouras P., Ramirez F., Hollister D.;
RT "Linkage of Marfan syndrome and a phenotypically related disorder to
two different fibrillin genes.";
Nature 352:330-334(1991).
[3]
VARIANTS CCA TYR-1252 AND SER-1433, AND VARIANT ILE-964.
MEDLINE=96083599; PubMed=7493032;
RX Putnam B.A., Zhang H., Ramirez F., Mliewicz D.M.;
RA "Fibrillin-2 (FBN2) mutations result in the Marfan-like disorder,
RT congenital contructural arachnodactyly.";
Nat. Genet. 11:456-458(1995).
[4]
VARIANTS CCA HIS-1114.
MEDLINE=98407789; PubMed=9737771;
RX Babcock D., Gasner C., Francke U., Maslen C.;
RA "A single mutation that results in an asp-to-his substitution and
RT partial exon skipping in a family with congenital contructural
arachnodactyly.";
Hum. Genet. 103:22-28(1998).
[5]
VARIANTS CCA PHE-1141 AND TRP-1252.
MEDLINE=20255236; PubMed=10797416;
RX Belleh S., Zhou G., Wang M., Der Kaloustian V.M., Pagon R.A.,
RA Godfrey M.;
RT "Two novel fibrillin-2 mutations in congenital contructural
arachnodactyly.";
Am. J. Med. Genet. 92:7-12(2000).
-1- FUNCTION: STRUCTURAL COMPONENT OF CONNECTIVE TISSUE MICROFIBRILS
THAT BINDS CALCIUM. FIBRILLIN-2-CONTAINING MICROFIBRILS REGULATE
THE EARLY PROCESS OF ELASTIC FIBER ASSEMBLY.
-1- DISEASE: DEFECTS IN FBN2 ARE THE CAUSE OF CONGENITAL CONTRACTURAL
ARACHNOACTYLY (CCA) (ALSO KNOWN AS BEALS SYNDROME). CCA IS
PHENOTYPICALLY SIMILAR TO MARFAN SYNDROME, BUT DOES NOT EFFECT THE
AORTA AND THE EYES.
-1- SIMILARITY: Contains 47 EGF-like domains.
-1- SIMILARITY: Contains 7 TGF-beta binding protein (TGFBP) domains.
-1- DATABASE: NAME=Elastic Fiber Homepage; NOTE=Fibrillin 2 page;
WWW="http://ef.wustl.edu/genes/FBN2.htm".
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CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
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CC EMBL: U03272; AAA18950.1;
CC EMBL: X62009; -; NOT_ANNOTATED_CDS.
CC PIR: A54105; A54105.
CC HSRP: P35555; IEMN.
CC Genew: HGNC:3604; FBN2.
CC MIM: 121050;
CC GO: GO:0005578; C:extracellular matrix; TAS.
CC GO: GO:0005201; F:extracellular matrix structural constituent; TAS.
CC GO: GO:0007345; P:embryogenesis and morphogenesis; TAS.
CC GO: GO:0007397; P:histogenesis and organogenesis; TAS.
CC InterPro: IPR000152; Asx_hydroxyl.
CC InterPro: IPR001881; EGF_Ca.
CC InterPro: IPR001438; EGF_II.
CC InterPro: IPR006209; EGF_III.
CC InterPro: IPR002212; Fibril-assoc.
CC Pfam: PF00008; EGF_45.
CC Pfam: PF00683; TB; 9.
CC PRINTS: PR00010; EGFBL00D.
CC SMART: SM00179; EGF_CA; 43.
CC PROSITE: PS00010; ASX_HYDROXYL; 43.

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DR PROSITE; PS00022; EGF 1; 2.  
 DR PROSITE; PS01186; EGF 2; 37.  
 DR PROSITE; PS01187; EGF\_CA; 42.  
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Query Match 51.3%; Score 40; DB 1; Length 2911;  
 Best Local Similarity 58.3%; Pred. No. 2e+02;  
 Matches 7; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

OY 1 CRTKPKCDKPR 12  
 DB 2341 CRTKPKCDKPR 2352  
 RESULT 10  
 ID VEGA\_CAVPO STANDARD; PRT; 164 AA.  
 AC P26617;  
 DT 01-AUG-1992 (Rel. 23, Created)  
 DT 01-AUG-1992 (Rel. 23, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A (VEGF-A) (Vascular permeability factor) (VPR).  
 GN VEGF OR VEGFA.  
 OS Cavia porcellus (Guinea pig).  
 OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Hystriognathii; Caviidae; Cavia.  
 OX NCBI\_TaxId=10141;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=ile duct;  
 RA Berea B.;  
 RL Submitted (JAN-1992) to the EMBL/Genbank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial cell growth. Induces endothelial proliferation and vascular permeability (By similarity). Also found as heterodimer with PlGF (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked.  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By

```

CC similarity).
CC -1 SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
CC EMBL; M84230; AAA37057.1; -.
CC HSSP; P15692; IVGH.
CC InterPro; IPR000072; PD_growth_factor.
CC Pfam; PF00341; PDGF_1.
CC ProDom; PD001629; PD_growth_factor; 1.
CC SMART; SM00141; PDGF_1.
CC PROSITE; PS00249; PDGF_1; 1.
CC PROSITE; PS50278; PDGF_2; 1.
CC MiCoGen; Angiogenesis; Growth factor; Glycoprotein.
CC DISULFID 25 67 BY SIMILARITY.
CC DISULFID 56 103 BY SIMILARITY.
CC DISULFID 60 103 BY SIMILARITY.
CC DISULFID 50 50 INTERCHAIN (BY SIMILARITY).
CC DISULFID 59 59 INTERCHAIN (BY SIMILARITY).
CC CARBOHYD 74 74 N-LINKED (GLCNAC. . .) (POTENTIAL).
CC SEQUENCE 164 AA; 19330 MW; 9EB86A18AD5DC4 CRC64;
SQ
Query Match 50.0%; Score 39; DB 1; Length 164;
Best Local Similarity 85.7%; Pred. No. 17;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
Oy 7 KCDKRR 13
Db 158 RCDKRR 164
RESULT 11
VEGA_BOVIN STANDARD; PRT; 190 AA.
ID VEGA_BOVIN STANDARD; PRT; 190 AA.
AC P15691.
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913;
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-47.
RX MEDLINE=90069608; PubMed=2479986;
RT Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;
RT "Vascular endothelial growth factor is a secreted angiogenic
RT mitogen."
RL Science 246:1306-1309(1989).
RN [2]
RP SEQUENCE OF 27-190 FROM N.A. (ISOFORMS ALPHA AND BETA).
RX MEDLINE=90121225; PubMed=2610687;
RT Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J.,
RT Lau K., Crisp T., Fiddes J.C., Abraham J.A.;
RT "Vascular endothelial growth factor: a new member of the platelet-
RT derived growth factor family."
RL Biochem. Biophys. Res. Commun. 165:1198-1206(1989).
RN [3]
RP SEQUENCE OF 27-31.
RX MEDLINE=89286596; PubMed=2735925;
RT Ferrara N., Henzel W.J.;
RT "Putative follicular cells secrete a novel heparin-binding growth
RT factor specific for vascular endothelial cells."

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RL Biochem. Biophys. Res. Commun. 161:851-858(1989).
CC -1 FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -1 SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1 SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (By
CC similarity).
CC -1 ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=2;
CC Name=Alpha;
CC IsoId=P15691-1; Sequence=Displayed;
CC Name=Beta;
CC IsoId=P15691-2; Sequence=VSP_004613, VSP_004614;
CC -1 SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
CC EMBL; M32976; AAA30502.1; -.
CC EMBL; M31836; AAA30804.1; -.
CC EMBL; M33750; AAA30805.1; -.
CC PIR; B40080; B40080.
CC HSSP; P15692; IVGH.
CC InterPro; IPR000072; PD_growth_factor.
CC Pfam; PF00341; PDGF_1.
CC ProDom; PD001629; PD_growth_factor; 1.
CC SMART; SM00141; PDGF_1.
CC PROSITE; PS00249; PDGF_1; 1.
CC PROSITE; PS50278; PDGF_2; 1.
CC MiCoGen; Angiogenesis; Growth factor; Glycoprotein; Signal;
CC Heparin-binding; Alternative splicing; Multigene family.
CC SIGNAL 1 26
CC CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.
CC DISULFID 51 93 BY SIMILARITY.
CC DISULFID 82 127 BY SIMILARITY.
CC DISULFID 86 129 BY SIMILARITY.
CC DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
CC DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
CC CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).
CC VASPLIC 139 183 Missing (in isoform Beta).
CC /FtId=VSP_004613.
CC /FtId=K (in isoform Beta).
CC /FtId=VSP_004614.
CC /FtId=EDBF903E46E24789 CRC64;
SQ SEQUENCE 190 AA; 22310 MW;
Query Match 50.0%; Score 39; DB 1; Length 190;
Best Local Similarity 85.7%; Pred. No. 19;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
Oy 7 KCDKRR 13
Db 184 RCDKRR 190
RESULT 12
VEGA_HORSE STANDARD; PRT; 190 AA.
ID VEGA_HORSE STANDARD; PRT; 190 AA.
AC O9GKR0.
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).

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GN VEGF OR VEGFA.
OS Equus caballus (Horse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
OK NCBI_TaxID=9796;
RN [1]
RP SEQUENCE FROM N.A.
RA Miura N., Mismu K., Kawahara K., Nakashima M., Fukumitsu S.,
RT Kawabata H., Uto N., Oka T., Maruyama I., Sakamoto H.;
RT "Cloning of cDNA and high-level expression of equine vascular
RT endothelial growth factor (VEGF).";
RL Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial
CC cell growth. Induces endothelial proliferation and vascular
CC permeability (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (By
CC similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
DR EMBL; AB053350; BAB20890.1; -.
DR HSSP; P15692; 1VGH.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS00278; PDGF_2; 1.
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Multigene family.
KW SIGNAL
FT CHAIN 1 26 POTENTIAL.
FT DISULFID 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 BY SIMILARITY.
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT DISULFID 100 100 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 100 100 N-LINKED (GLCNAC...) (POTENTIAL).
SQ SEQUENCE 190 AA; 22312 MW; 87B9E161439E5F87 CRC64;

Query Match 50.0%; Score 39; DB 1; Length 190;
Best Local Similarity 85.7%; Pred. No. 19;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 7 KCDKPRR 13
DB 184 RCDKPRR 190

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OK NCBI_TaxID=10036;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-Decidua, and Embryo;
RX MEDLINE=99311285; Pubmed=10382276;
RA Yi X.J., Jiang H.Y., Lee K.K., Tang P.L., Chow P.H.;
RT "Expression of vascular endothelial growth factor (VEGF) and its
RT receptors during embryonic implantation in the golden hamster
RT (Mesocricetus auratus).";
RL Cell Tissue Res. 296:339-349(1999).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (By
CC similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
DR EMBL; AF063013; AAK00049.1; -.
DR HSSP; P15692; 1VGH.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS00278; PDGF_2; 1.
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Multigene family.
KW SIGNAL
FT CHAIN 1 26 VASCULAR ENDOTHELIAL GROWTH FACTOR A.
FT DISULFID 27 190 BY SIMILARITY.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 100 100 N-LINKED (GLCNAC...) (POTENTIAL).
SQ SEQUENCE 190 AA; 22276 MW; F00C5A8EA79A465F CRC64;

Query Match 50.0%; Score 39; DB 1; Length 190;
Best Local Similarity 85.7%; Pred. No. 19;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 7 KCDKPRR 13
DB 184 RCDKPRR 190

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RESULT 13
VEGA_MESAU STANDARD; PRT; 190 AA.
ID VEGA_MESAU
AC 099PS1;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Mesocricetus.

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RESULT 14
VEGA_PIG STANDARD; PRT; 190 AA.
ID VEGA_PIG
AC P49151; Q9GL52;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suidae; Suis.

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OX NCBI\_TaxID=9823;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC Tissue-Heart;  
 RA MEDLINE=95143284; PubMed=7941203;  
 RA Sharma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;  
 RT "Nucleotide sequence and expression of the porcine vascular  
 RT endothelial growth factor."  
 RL Biochim. Biophys. Acta 1260:235-238(1995).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RA Lee T., Canty J.M.;  
 RT "PCR cloning of porcine cardiac vascular endothelial growth factor  
 RT gene."  
 RL Submitted (NOV-2000) to the EMBL/Genbank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or  
 CC to the extracellular matrix unless released by heparin (By  
 CC similarity).  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 DR EMBL; X81380; CAA57143.1; -  
 DR EMBL; AF318502; AAG33064.1; -  
 DR PIR; S52130; S52130.  
 DR HSSP; P15692; IVGH.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 KM Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KM Heparin-binding; Multigene family.  
 KW SIGNAL  
 FT CHAIN 1 26 POTENTIAL.  
 FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 FT DISULFID 51 93 BY SIMILARITY.  
 FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CARBOHYD 100 100 N-LINKED (GLCNAC... ) (POTENTIAL).  
 FT CONFLICT 102 100 T -> A (IN REF. 2).  
 FT CONFLICT 102 102 T -> A (IN REF. 2).  
 SO SEQUENCE 190 AA; 22368 MW; 04D408BD7913047F CRC64;

Query Match 50.0%; Score 39; DB 1; Length 190;  
 Best Local Similarity 85.7%; Pred. No. 19;  
 Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 7 KCDKRR 13  
 DB 184 RCDKRR 190

RESULT 15  
 ID VEGA\_CANFA STANDARD; PRT; 214 AA.  
 AC Q9MYV3; Q9XSF3; Q9XSF4; Q9XSF5;  
 DT 28-FEB-2003 (Rel. 41, Created)

DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DE 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 DE permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Canis familiaris (dog).  
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.  
 OX NCBI\_TaxID=9615;  
 RN [1]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF-188).  
 RX MEDLINE=20125516; PubMed=10661874;  
 RA Scheidegger P., Weighlofer W., Suarez S., Kaser-Hotz B., Steiner R.,  
 RA Ballmer-Hofer K., Jausel R.;  
 RT "Vascular endothelial growth factor (VEGF) and its receptors in tumor-  
 RT bearing dogs."  
 RL Biol. Chem. 380:1449-1454(1999).  
 RL [2]  
 RP SEQUENCE FROM N.A. (ISOFORMS VEGF-188; VEGF-182 AND VEGF-164).  
 RC Tissue-Heart;  
 RA Jingsing L., Rogue R.S.;  
 RL Submitted (MAR-1999) to the EMBL/Genbank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or  
 CC to the extracellular matrix unless released by heparin (By  
 CC similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=3;  
 CC Comment=Additional isoforms seem to exist;  
 CC Name=VEGF-188;  
 CC IsoId=Q9MYV3-1; Sequence=Displayed;  
 CC Name=VEGF-182;  
 CC IsoId=Q9MYV3-2; Sequence=VSP\_004617;  
 CC Name=VEGF-164;  
 CC IsoId=Q9MYV3-3; Sequence=VSP\_004616;  
 CC Name=VEGF-164;  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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 CC -----  
 DR EMBL; AJ133758; CAB82426.1; -  
 DR EMBL; AF133250; AAD29684.1; -  
 DR EMBL; AF133249; AAD29683.1; -  
 DR EMBL; AF133248; AAD29682.1; -  
 DR HSSP; P15692; IVGH.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 KM Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KM Heparin-binding; Multigene family.  
 KW SIGNAL  
 FT CHAIN 1 26 POTENTIAL.  
 FT CHAIN 27 214 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 FT DISULFID 51 93 BY SIMILARITY.  
 FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CARBOHYD 100 100 N-LINKED (GLCNAC... ) (POTENTIAL).



FT VARSPLIC 140 140 K -> N (in isoform VEGF-164).  
 FT VARSPLIC 141 164 /FTid=VSP\_004615.  
 FT VARSPLIC 159 164 Missing (in isoform VEGF-164).  
 FT VARSPLIC 161 164 /FTid=VSP\_004616.  
 FT CONFLICT 143 143 Missing (in isoform VEGF-182).  
 FT CONFLICT 161 161 /FTid=VSP\_004617.  
 FT CONFLICT 161 161 I -> V (IN REF. 2).  
 SQ SEQUENCE 214 AA; 25175 MW; 0AC980A158C44B27 CRC64;

Query Match 50.0%; Score 39; DB 1; Length 214;  
 Best Local Similarity 85.7%; Pred. No. 22;  
 Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Oy 7 KCDKPRR 13  
 :|||||  
 Db 208 RCDKPRR 214

Search completed: January 30, 2004, 11:41:03  
 Job time : 4 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:33:38 ; Search time 13.4667 Seconds  
(without alignments)  
249.110 Million cell updates/sec

Title: US-09-266-543-3

Perfect score: 78

Sequence: 1 CRTPKCKDKPPR 13

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 830525 seqs, 258052604 residues

Total number of hits satisfying chosen parameters: 830525

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

SPTREMBL\_23:\*  
1: sp\_archaea:\*  
2: sp\_bacteria:\*  
3: sp\_fungi:\*  
4: sp\_human:\*  
5: sp\_invertebrate:\*  
6: sp\_mammal:\*  
7: sp\_mhc:\*  
8: sp\_organelle:\*  
9: sp\_phage:\*  
10: sp\_plant:\*  
11: sp\_rodent:\*  
12: sp\_virus:\*  
13: sp\_vertebrate:\*  
14: sp\_unclassified:\*  
15: sp\_virus:\*  
16: sp\_bacteriap:\*  
17: sp\_archaeap:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	51.5	66.0	65	6 Q8M1N0	Q8M1N0 capra hircu
2	51.5	66.0	118	6 Q9M2B1	Q9M2B1 ovis aries
3	50	64.1	148	13 Q42571	Q42571 xenopus lae
4	47	60.3	379	4 Q9P270	Q9P270 homo sapien
5	45	55.1	102	3 Q94005	Q94005 candida alb
6	43	55.1	259	5 Q8MK06	Q8MK06 drosophila
7	43	55.1	614	16 Q98212	Q98212 rhizobium l
8	42	53.8	72	16 Q8U547	Q8U547 agrobacteri
9	42	53.8	227	16 Q8YU18	Q8YU18 anabaena sp
10	42	53.8	262	12 Q8QRW6	Q8QRW6 chimpanzee
11	41	52.6	139	10 Q39795	Q39795 gossypium h
12	41	52.6	139	10 Q39787	Q39787 gossypium h
13	41	52.6	144	13 Q73822	Q73822 brachydanio
14	41	52.6	370	5 Q8SXZ3	Q8SXZ3 drosophila
15	41	52.6	439	5 Q9VD04	Q9VD04 drosophila
16	41	52.6	501	10 Q9FHMO	Q9FHMO arabidopsis

17	41	52.6	794	17 Q8TNE0	Q8TNE0 methanosa
18	41	52.6	1080	16 Q84688	Q84688 chlamydia t
19	40	51.3	162	10 Q8W187	Q8W187 prunus dulc
20	40	51.3	166	11 Q9CV06	Q9CV06 mus musculu
21	40	51.3	169	10 Q8H970	Q8H970 prunus salic
22	40	51.3	196	4 Q8TEH0	Q8TEH0 homo sapien
23	40	51.3	207	10 Q8GTP9	Q8GTP9 prunus salic
24	40	51.3	211	10 Q8GVN5	Q8GVN5 arabidopsis
25	40	51.3	216	2 Q9R3N0	Q9R3N0 escherichia
26	40	51.3	216	9 Q80201	Q80201 methanobact
27	40	51.3	255	4 Q8N880	Q8N880 homo sapien
28	40	51.3	351	10 Q9LSC9	Q9LSC9 arabidopsis
29	40	51.3	403	10 Q9CAT0	Q9CAT0 arabidopsis
30	40	51.3	406	10 Q8H216	Q8H216 oryza sativ
31	40	51.3	414	10 Q9LRS2	Q9LRS2 arabidopsis
32	40	51.3	417	10 Q9SS14	Q9SS14 arabidopsis
33	40	51.3	468	4 Q8TF47	Q8TF47 homo sapien
34	40	51.3	485	10 Q8LD24	Q8LD24 arabidopsis
35	40	51.3	495	5 Q9V9F2	Q9V9F2 drosophila
36	40	51.3	497	5 Q9V9F1	Q9V9F1 drosophila
37	40	51.3	498	5 Q9NAE3	Q9NAE3 caenorhabdi
38	40	51.3	526	10 Q9LPT1	Q9LPT1 arabidopsis
39	40	51.3	2906	11 Q9WU99	Q9WU99 ratius norv
40	40	50.0	64	6 Q8M119	Q8M119 ovis aries
41	39	50.0	88	10 Q944D2	Q944D2 prunus nune
42	39	50.0	102	6 Q9XT61	Q9XT61 macaca fasc
43	39	50.0	102	11 Q63672	Q63672 ratius norv
44	39	50.0	106	11 Q8BT49	Q8BT49 mus musculu
45	39	50.0	109	6 Q8M1N1	Q8M1N1 capra hircu

## ALIGNMENTS

RESULT 1	ID	Q8M1N0	PRELIMINARY;	PRT;	65 AA.
AC	Q8M1N0;	01-OCT-2002 (TREMBLrel. 22, Created)			
DT	01-OCT-2002 (TREMBLrel. 22, Last sequence update)				
DT	01-MAR-2003 (TREMBLrel. 23, Last annotation update)				
DE	Vascular endothelial growth factor 121 (Fragment).				
OS	Capra hircus (Goat).				
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;				
OC	Mammalia; Butheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;				
OC	Bovidae; Caprinae; Capra.				
OK	NCBI_TaxID=9925;				
RN	[1]				
RP	SEQUENCE FROM N.A.				
RC	TISSUE=Corpus luteum;				
RA	Kawate N., Tawji M., Tamada H., Inaba T., Sawada T.,				
RT	"Changes of Messenger RNAs Encoding Vascular Endothelial Growth Factor				
RT	and Its Receptors during the Development and Maintenance of Caprine				
RT	Corpora lutea."				
RL	Submitted (May-2002) to the EMBL/Genbank/DBJ databases.				
DR	EMBL: AY114353; AAM7674.1; -				
DR	InterPro: IPR000072; PD_growth_factor.				
DR	PIfam: PF00341; PDGF; 1.				
DR	ProDom: PD001629; PD_growth_factor; 1.				
DR	SMART: SM00141; PDGF; 1.				
DR	PROSITE: PS50278; PDGF_2; 1.				
FT	NON TER				
FT	SEQUENCE 65 AA; 7562 MW; BA3E5384364B05E3 CRC64;				

Qy	1 CRTPKCKDKPPR 13	Score 51.5; DB 6; Length 65;
Db	48 CRPKDKARCKDKPPR 65	Best Local Similarity 61.1%; Pred. No. 0.2;
		Matches 11; Conservative 0; Mismatches 2; Indels 5; Gaps 1;

## RESULT 2

Q9MZB1 PRELIMINARY; PRT; 118 AA.  
 AC Q9MZB1.  
 DT 01-OCT-2000 (TREMBLrel. 15, Created)  
 DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 GN VEGF.  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Caprinae; Ovis.  
 RX NCBI\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Placental artery endothelium;  
 RA Zheng J., Tsol S.C., Magness R.R.;  
 RT "Growth factor expression in ovine fetal placental artery endothelial  
 cells";  
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF250375; AAF75258.1; -.  
 DR HSSP; P49763; IFZV.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 FT NON TER 1  
 SQ SEQUENCE 118 AA; 13931 MW; 757DC53A56378A6 CRC64;

Query Match 66.0%; Score 51.5; DB 6; Length 118;  
 Best Local Similarity 61.1%; Pred. No. 0.34;  
 Matches 11; Conservative 0; Mismatches 2; Indels 5; Gaps 1;

Qy 1 CRTK-----PEKCDKPRR 13  
 Db 101 CRPKDKARQEKCDKPRR 118

RESULT 3  
 ID 042571 PRELIMINARY; PRT; 148 AA.  
 AC 042571.  
 DT 01-JAN-1998 (TREMBLrel. 05, Created)  
 DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor 122.  
 GN VEGF.  
 OS Xenopus laevis (African clawed frog).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipridae; Pipidae;  
 OC Xenopodidae; Xenopus.  
 RX NCBI\_TaxID=8355;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC Cleaver O., Tonissen K.F., Saha M.S., Krieg P.A.;  
 RT "Neovascularization of the Xenopus embryo";  
 RL Dev. Dyn. 0:0-0(1997).  
 DR EMBL; AF008593; AAB63679.1; -.  
 DR HSSP; P49763; IFZV.  
 DR InterPro; IPR002400; GF\_cyknoc.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR PRINTS; PR00438; GFCYSKNOT.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 SQ SEQUENCE 148 AA; 17234 MW; 4AD153CA2F8B1B95 CRC64;

Query Match 64.1%; Score 50; DB 13; Length 148;

Best Local Similarity 66.7%; Pred. No. 0.73;  
 Matches 8; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

Qy 2 RTPEKCDKPRR 13  
 Db 137 KSKQEKCEKPRR 148

## RESULT 4

Q9P2T0 PRELIMINARY; PRT; 379 AA.  
 AC Q9P2T0.  
 DT 01-OCT-2000 (TREMBLrel. 15, Created)  
 DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE THEG protein (Testicular haploid expressed gene).  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 RX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC MEDLINE=20270174; PubMed=10747865;  
 RX Yanaka N., Kobayashi K., Wakimoto K., Yamada E., Imahie H., Imai Y.,  
 RA Mori C.;  
 RT "Insertional mutation of the murine kistmo locus caused a defect in  
 spermatogenesis";  
 RL J. Biol. Chem. 275:14791-14794(2000).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RA Mannan A.U., Luecke K., Burfeind P., Engel W.;  
 RT "Molecular cloning, expression studies and chromosomal localization of  
 human homologue of THEG";  
 RL Submitted (MAY-2000) to the EMBL/GenBank/DBJ databases.  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Testis;  
 RA Strausberg R.;  
 RL Submitted (APR-2002) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AB033128; BAA33718.1; -.  
 DR EMBL; AF268610; AAG17663.1; -.  
 DR EMBL; BC028574; AAH28574.1; -.  
 DR Genew; HGNC:13706; THEG.  
 DR InterPro; IPR006623; THEG.  
 DR SMART; SM00705; THEG; 6  
 SQ SEQUENCE 379 AA; 43443 MW; DE1B6397A4FPA875 CRC64;

Query Match 60.3%; Score 47; DB 4; Length 379;  
 Best Local Similarity 63.6%; Pred. No. 5.5;  
 Matches 7; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 2 RTPEKCDKPRR 12  
 Db 366 KASPEKCDQPR 376

## RESULT 5

Q94005 PRELIMINARY; PRT; 102 AA.  
 AC Q94005.  
 DT 01-MAY-1999 (TREMBLrel. 10, Created)  
 DT 01-MAY-1999 (TREMBLrel. 10, Last sequence update)  
 DT 01-MAY-1999 (TREMBLrel. 10, Last annotation update)  
 DE Questionable ori.  
 GN CAZ0C1.18C.  
 OS Candida albicans (Yeast).  
 OC Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;  
 OC Saccharomycetales; mitosporic Saccharomycetales; Candida.  
 RX NCBI\_TaxID=5476;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=1161;  
 RA Oliver K., Harris D.;

RL Submitted (NOV-1998) to the EMBL/GenBank/DBJ databases.  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=1161;  
 RA Barrell B.G., Rajandream M.A.;  
 RL Submitted (NOV-1998) to the EMBL/GenBank/DBJ databases.  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=1161;  
 RX MEDLINE=97435544; PubMed=9290243;  
 RA Tate E., Simon M.C., King S., Brown A.J., Gow N.A.R., Shaw D.J.;  
 RT "A Candida albicans Genome Project: Cosmid Contigs, Physical Mapping,  
 and Gene Isolation";  
 RL Fungal Genet. Biol. 21:308-314(1997).  
 DR EMBL, AL033391; CAA21939.1; -;  
 SQ SEQUENCE 102 AA; 11151 MW; 53F29CF740CC3D0F CRC64;  
  
 Query Match 55.1%; Score 43; DB 3; Length 102;  
 Best Local Similarity 77.8%; Pred. No. 7.9;  
 Matches 7; Conservative 0; Mismatches 2; Indels 0; Gaps 0;  
  
 QY 1 CRTREKCD 9  
 DB 89 CTRKCKCD 97  
  
 RESULT 6  
 OSMK06 PRELIMINARY; PRT; 259 AA.  
 AC OSMK06;  
 DT 01-OCT-2002 (TREMBLrel. 22, Created)  
 DT 01-OCT-2002 (TREMBLrel. 22, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE CG30363-PA  
 GN CG30363 OR CG2149.  
 OS Drosophila melanogaster (Fruit fly).  
 OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;  
 OC Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;  
 OC Ephydroidea; Drosophilidae; Drosophila.  
 OX NCBI\_TaxId=7227;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=Berkley;  
 RX MEDLINE=20196006; PubMed=10731132;  
 RA Adams M.D., Gelinkher S.E., Holt R.A., Evans C.A., Gocayne J.D.,  
 RA Amaratides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galie R.F.,  
 RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,  
 RA Suton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,  
 RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,  
 RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,  
 RA Abril J.F., Abmayr A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,  
 RA Ballew R.M., Basu A., Baxendale U., Bayraktaroglu L., Beasley E.M.,  
 RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,  
 RA Botchava D., Botchan M.R., Bouck J., Brockstein P., Broctier P.,  
 RA Burris K.C., Busam D.A., Butler H., Cadieu L.E., Center A., Chandra I.,  
 RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,  
 RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,  
 RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,  
 RA Dudin K.U., Evangelista C.C., Ferraz C., Ferreira S., Fleischmann W.,  
 RA Folsler C., Gabrielian A.E., Gary N.S., Gelbart W.M., Glaeser K.,  
 RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,  
 RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck C.,  
 RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwan C.,  
 RA Jalali M., Kalush F., Karpen G.H., Ke Z., Kemison J.A., Ketchum K.A.,  
 RA Kimmel B.B., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,  
 RA Laasoe P., Lei Y., Levitky A.A., Li J., Li Z., Liang Y., Lin X.,  
 RA Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D.,  
 RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,  
 RA Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,  
 RA Nelson D.R., Nelson K.A., Nixon K., Nusser D.R., Pauley J.M.,  
 RA Palazzolo M., Peltman G.S., Pan S., Pollard J., Puri V., Reese M.G.,  
 RA Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,  
 RA Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,

RA Spier E., Spradling A.C., Stapleton M., Strong R., Sun E.,  
 RA Svirska R., Tector C., Turner R., Venter E., Wang A.H., Wang X.,  
 RA Wang Z.-Y., Wassarman D.A., Weinstein G.M., Weissbach J.,  
 RA Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,  
 RA Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L.,  
 RA Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith H.O.,  
 RA Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.;  
 RT "The genome sequence of Drosophila melanogaster";  
 RL Science 287:2185-2195(2000).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RA Gelinkher S.E., Adams M.D., Kronmiller B., Wan K.H., Holt R.A.,  
 RA Evans C.A., Gocayne J.D., Amaratides P.G., Brandon R.C., Rogers Y.,  
 RA Carlson J., An H., Baldwin D., Banzon J., Beeson K.Y., Busam D.A.,  
 RA Carlson J.W., Center A., Champe M., Davenport L.B., Dietz S.M.,  
 RA Dodson K., Dorsett V., Doup L.E., Doyle C., Dresnek D., Farfan D.,  
 RA Ferreira S., Frise E., Galie R.F., Gary N.S., George R.A.,  
 RA Gonzalez M., Houck J., Hoskins R.A., Hostin D., Howland T.J.,  
 RA Ibegwan C., Jalali M., Kruse D., Li P., Mattei B., Moshrefi A.,  
 RA McIntosh T.C., Moy M., Murphy B., Nelson C., Nelson K.A., Nunoo J.,  
 RA Pauley J., Paragas V., Park S., Patel S., Pfeiffer B., Scheeler F.,  
 RA Phouanavong S., Peltman G.S., Puri V., Richards S., Scheeler F.,  
 RA Stapleton M., Strong R., Svirska R., Tector C., Tyler D.,  
 RA Williams S.M., Zaveri J.S., Smith H.O., Venter J.C., Rubin G.M.;  
 RT "Sequencing of Drosophila melanogaster genome";  
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RA Miera S., Crosby M.A., Matthews B.B., Bayraktaroglu L., Campbell K.,  
 RA Hradecky P., Huang Y., Kaminker J.S., Prochuk S.E., Smith C.D.,  
 RA Tupy J.L., Bergman C., Berman B., Carlson J.W., Gelinkher S.E.,  
 RA Clump M., Drysdale R., Emmert D., Frise E., de Grey A., Harris N.,  
 RA Kronmiller B., Marshall B., Millburn G., Richter J., Russo S.,  
 RA Seattle S.M.J., Smith E., Shu S., Smutnick F., Whitefield E.,  
 RA Ashburner M., Gelbart W.M., Rubin G.M., Mungall C.J., Lewis S.E.;  
 RT "Annotation of Drosophila melanogaster genome";  
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.  
 RN [4]  
 RP SEQUENCE FROM N.A.  
 RA Adams M.D., Gelinkher S.E., Gibbs R.A., Rubin G.M., Venter C.J.;  
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.  
 RN [5]  
 RP SEQUENCE FROM N.A.  
 RA FlyBase;  
 RL Submitted (SEP-2002) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AE003837; AAG68842.1; -;  
 DR FlyBase; FBgn050363; CG30363.  
 DR InterPro; IPR006611; DUF\_DM6.  
 DR SMART; SMO0689; DM6; 1.  
 SQ SEQUENCE 259 AA; 30652 MW; E2CA91334505031E CRC64;  
  
 Query Match 55.1%; Score 43; DB 5; Length 259;  
 Best Local Similarity 70.0%; Pred. No. 18;  
 Matches 7; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
  
 QY 4 KPEKCDXPR 13  
 DB 178 RPKCTKPR 187  
  
 RESULT 7  
 O98212 PRELIMINARY; PRT; 614 AA.  
 AC O98212;  
 DT 01-OCT-2001 (TREMBLrel. 18, Created)  
 DT 01-OCT-2001 (TREMBLrel. 18, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE DNA methyltransferase.  
 GN MLL9056.  
 OS Rhizobium loti (Mesorhizobium loti).  
 OG Plasmid pMLA.  
 OC Bacteria; Proteobacteria; Alphaproteobacteria; Rhizobiales;  
 OC Phyllobacteriaceae; Mesorhizobium.

OX NCBI\_TaxID=381;  
 [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=MAFF303099;  
 RX MEDLINE=2108230; PubMed=11214968;  
 RA Kaneko T., Nakamura Y., Sato S., Asamizu E., Kato T., Sasamoto S.,  
 RA Watanabe A., Idehara K., Ishikawa A., Kawashima K., Kimura T.,  
 RA Kishida Y., Kiyokawa C., Kohara M., Matsumoto M., Matsuno A.,  
 RA Mochizuki Y., Nakayama S., Nakazaki N., Shimo S., Sugimoto M.,  
 RA Takuchi C., Yamada M., Tabata S.,  
 RT "Complete genome structure of the nitrogen-fixing symbiotic bacterium  
 RT Mesorhizobium loti.";  
 RL DNA Res. 7:331-338(2000).  
 DR EMBL; AP003015; BAB54474.1; -;  
 DR InterPro; IPR001091; CN4\_Mettransf.  
 DR InterPro; IPR002295; D21N6\_mtfase.  
 DR InterPro; IPR002941; N6/N4\_Mtase.  
 DR Pfam; PF01555; N6\_N4\_Mtase; 1.  
 DR PRINTS; PR00506; D21N6MTFRASE.  
 DR PRINTS; PR00508; S21N4MTFRASE.  
 DR PROSITE; PS00092; N6\_MTASE; 1.  
 KW Transferrase; Methyltransferase; Plasmid; Complete proteome.  
 SQ SEQUENCE 614 AA; 69230 MW; 14507EDDAE0FBC6 CRC64;

Query Match 55.1%; Score 43; DB 16; Length 614;  
 Best Local Similarity 72.7%; Pred. No. 40;  
 Matches 8; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

3 TKPEKCDKPRR 13  
 :|||:|  
 565 SKPEKSKPRR 575

RESULT 8  
 Q8U547 PRELIMINARY; PRT; 72 AA.  
 AC Q8U547;  
 DT 01-JUN-2002 (TREMBLrel. 21, Created)  
 DT 01-JUN-2002 (TREMBLrel. 21, Last sequence update)  
 DE 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
 DE AGR\_C 4274P.  
 GN AGR\_C 4274.  
 OS Agrobacterium tumefaciens (strain C58 / ATCC 33970).  
 OC Bacteria; Proteobacteria; Alphaproteobacteria; Rhizobiales;  
 OC Rhizobiaceae; Rhizobium.  
 OX NCBI\_TaxID=176299;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=21608551; PubMed=11743194;  
 RA Goodner B., Hinkle G., Gattung S., Miller N., Blanchard M.,  
 RA Quicillo B., Goldman B.S., Cao Y., Akenazi M., Halling C., Mullin L.,  
 RA Hummel K., Gordon J., Vaudin M., Iatchouk O., Epp A., Liu F.,  
 RA Wollam C., Allinger M., Doughty D., Scott C., Lappas C., Markelz B.,  
 RA Flanagan C., Crowell C., Gurson J., Lomo C., Sear C., Strub G.,  
 RA Cleto C., Slater S.,  
 RT "Genome sequence of the plant pathogen and biotechnology agent  
 RT Agrobacterium tumefaciens C58.";  
 RL Science 294:2323-2328(2001).  
 DR EMBL; AB008150; AAK8095.1; -;  
 SQ SEQUENCE 72 AA; 8478 MW; 73D1EABF0FDDAD CRC64;

Query Match 53.8%; Score 42; DB 16; Length 72;  
 Best Local Similarity 53.8%; Pred. No. 8.4;  
 Matches 7; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

1 CRTPEKCDKPRR 13  
 :|||:|  
 53 COTKPRCDKPRR 65

RESULT 9  
 Q8YU18

ID Q8YU18 PRELIMINARY; PRT; 227 AA.  
 AC Q8YU18;  
 DT 01-MAR-2002 (TREMBLrel. 20, Created)  
 DT 01-MAR-2002 (TREMBLrel. 20, Last sequence update)  
 DE 01-MAR-2002 (TREMBLrel. 20, Last annotation update)  
 DE Hypothetical protein A1R2543.  
 GN A1R2543.  
 OS Anabaena sp. (strain PCC 7120).  
 OC Bacteria; Cyanobacteria; Nostocales; Nostocaceae; Nostoc.  
 OX NCBI\_TaxID=103690;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=21595285; PubMed=11759840;  
 RA Kaneko T., Nakamura Y., Wolk C.P., Kuritz T., Sasamoto S.,  
 RA Watanabe A., Iriuchi M., Ishikawa A., Kawashima K., Kimura T.,  
 RA Kishida Y., Kohara M., Matsumoto M., Matsuno A., Muraki A.,  
 RA Nakazaki N., Shimo S., Sugimoto M., Takazawa M., Yamada M.,  
 RA Yasuda M., Tabata S.,  
 RT "Complete genomic sequence of the filamentous nitrogen-fixing  
 RT cyanobacterium Anabaena sp. strain PCC 7120.";  
 RL DNA Res. 8:205-213(2001).  
 DR EMBL; AP003589; BAB74242.1; -;  
 KW Hypothetical protein; Complete proteome.  
 SQ SEQUENCE 227 AA; 27026 MW; 7A12DD8831B852EB CRC64;

Query Match 53.8%; Score 42; DB 16; Length 227;  
 Best Local Similarity 58.3%; Pred. No. 24;  
 Matches 7; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

2 RTPEKCDKPRR 13  
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 210 RLPRDQDKPRR 221

RESULT 10  
 Q8QRW6 PRELIMINARY; PRT; 262 AA.  
 AC Q8QRW6;  
 DT 01-JUN-2002 (TREMBLrel. 21, Created)  
 DT 01-JUN-2002 (TREMBLrel. 21, Last sequence update)  
 DE 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
 DE UL133.  
 OS Chimpanzee cytomegalovirus.  
 OC Viruses; dsDNA viruses, no RNA stage; Herpesviridae;  
 OC Betaherpesvirinae; Cytomegalovirus.  
 OX NCBI\_TaxID=188763;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Davison A.J., Akter P., Dolan A., Wright K.M., Addison C.,  
 RA Alexander D.J., Hayward G.S., McGeoch D.J.,  
 RT "The human cytomegalovirus genome revisited."  
 RL Submitted (Feb-2002) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF480884; AAM00758.1; -;  
 SQ SEQUENCE 262 AA; 27884 MW; A055E20515A26572 CRC64;

Query Match 53.8%; Score 42; DB 12; Length 262;  
 Best Local Similarity 63.6%; Pred. No. 27;  
 Matches 7; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

3 TKPEKCDKPRR 13  
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 157 TKPEKCDKPRR 167

RESULT 11  
 Q39795 PRELIMINARY; PRT; 139 AA.  
 AC Q39795;  
 DT 01-NOV-1996 (TREMBLrel. 01, Created)  
 DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)  
 DT 01-OCT-2002 (TREMBLrel. 22, Last annotation update)  
 DE 2S albumin storage protein precursor.  
 GN MAT5-A.

```

OS Gossypium hirsutum (Upland cotton).
OC Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
OC Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
OC eurosid II; Malvales; Malvaceae; Malvoideae; Gossypium.
OX NCBI_TaxID=3635;
RN (1)
RP SEQUENCE FROM N.A.
RC TISSUE=Cotyledon;
RA Galau G.A., Mang H.Y.-C., Hughes D.W.;
RT "Cotton Mats-A (Cl64) gene and Mats-D cDNAs encoding methionine-rich
RT 2S albumin storage proteins.";
RL Submitted (JAN-1992) to the EMBL/GenBank/DBJ databases.
DR EMBL; M86213; AAA33066.1; -.
DR InterPro; IPR003612; AAI.
DR Pfam; PF00234; tryp_alpha_amy1; 1.
DR SMART; SM00499; AAI; 1.
KM Signal.
FT SIGNAL.
FT CHAIN.
FT CHAIN.
SQ SEQUENCE 139 AA; 15700 MW; 02ACE24FFEC9EF90 CRC64;

Query Match
Best Local Similarity 52.6%; Score 41; DB 10; Length 139;
Matches 6; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

OY 1 CRTPEKCDKPRR 13
DB 124 CEMEPCRCCTPSR 136

RESULT 12
O39787 PRELIMINARY; PRT; 139 AA.
AC Q39787;
DT 01-NOV-1996 (TRENBLrel. 01, Created)
DT 01-NOV-1996 (TRENBLrel. 01, Last sequence update)
DT 01-OCT-2002 (TRENBLrel. 22, Last annotation update)
DE 2S albumin storage protein precursor.
GN Mats-D.
OS Gossypium hirsutum (Upland cotton).
OC Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
OC Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
OC eurosid II; Malvales; Malvaceae; Malvoideae; Gossypium.
OX NCBI_TaxID=3635;
RN (1)
RP SEQUENCE FROM N.A.
RC STRAIN=Coker 201; TISSUE=Cotyledon;
RA Galau G.A., Mang H.Y.-C., Hughes D.W.;
RT "Cotton Mats5 (Cl64) gene and cDNAs encoding a methionine-rich 2S
RT albumin storage protein.";
RL Submitted (JAN-1992) to the EMBL/GenBank/DBJ databases.
DR EMBL; M83301; AAA33049.1; -.
DR InterPro; IPR003612; AAI.
DR Pfam; PF00234; tryp_alpha_amy1; 1.
DR SMART; SM00499; AAI; 1.
KM Signal.
FT SIGNAL.
FT CHAIN.
FT CHAIN.
SQ SEQUENCE 139 AA; 15831 MW; 43ACF33FE97D19B4 CRC64;

Query Match
Best Local Similarity 46.2%; Score 41; DB 10; Length 139;
Matches 6; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

OY 1 CRTPEKCDKPRR 13
DB 124 CEMEPCRCCTPSR 136

RESULT 13
O73822
O73822

```

```

ID 073822 PRELIMINARY; PRT; 144 AA.
AC 073822;
DT 01-AUG-1998 (TRENBLrel. 07, Created)
DT 01-AUG-1998 (TRENBLrel. 07, Last sequence update)
DT 01-MAR-2003 (TRENBLrel. 23, Last annotation update)
DE Vascular endothelial growth factor 121 isoform.
GN VEGF.
OS Brachydanio rerio (Zebrafish) (Danio rerio).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC Cyprinidae; Danio.
OX NCBI_TaxID=7955;
RN (1)
RP SEQUENCE FROM N.A.
RA Liang D., Ge R.;
RT "Vascular endothelial growth factor 121 isoform from zebrafish, Danio
RT rerio.";
RL Submitted (APR-1998) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF059661; AAC14713.1; -.
DR HSSP; P49763; 1FZV.
DR ZFIN; ZDB-GENE-990415-273; vegf.
DR InterPro; IPR002400; GF_cytknot.
DR Pfam; PF00438; GFCYKNOT.
DR PRINTS; PR00438; GFCYKNOT.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS0278; PDGF_2; 1.
SQ SEQUENCE 144 AA; 16479 MW; 3036A7407AA0832 CRC64;

Query Match
Best Local Similarity 54.5%; Score 41; DB 13; Length 144;
Matches 6; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

OY 2 RTPEKCDKPR 12
DB 134 KAKRCKRCKPR 144

RESULT 14
O8SX23 PRELIMINARY; PRT; 370 AA.
ID O8SX23;
AC O8SX23;
DT 01-JUN-2002 (TRENBLrel. 21, Created)
DT 01-JUN-2002 (TRENBLrel. 21, Last sequence update)
DT 01-MAR-2003 (TRENBLrel. 23, Last annotation update)
DE RE41968P.
GN CG4413.
OS Drosophila melanogaster (Fruit fly).
OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
OC Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
OC Ephydriidae; Drosophilidae; Drosophila.
OX NCBI_TaxID=7227;
RN (1)
RP SEQUENCE FROM N.A.
RC STRAIN=Berkley;
RA Stapleton M., Brkstein P., Hong L., Agbayani A., Carlson J.,
RA Champagne M., Chavez C., Dorsett V., Dresnek D., Farfan D., Frise B.,
RA George R., Gonzalez M., Guarin H., Krommiller B., Li P., Liao G.,
RA Miranda A., Mungall C.J., Nunoo J., Pacleb J., Pargae V., Park S.,
RA Patel S., Phouanavong S., Wan K., Yu C., Lewis S.B., Rubin G.M.,
RA Ceiliker S.;
RL Submitted (JAN-2002) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY075490; AAL68300.1; -.
DR FlyBase; FBgn0038767; CG4413.
DR InterPro; IPR007087; znf_C2H2.
DR Pfam; PF00096; znf_C2H2_2.
DR ProDom; PD000003; znf_C2H2_1.
DR SMART; SM00355; znf_C2H2_2.
DR PROSITE; PS00028; ZINC_FINGER_C2H2_1; 2.
DR PROSITE; PS00157; ZINC_FINGER_C2H2_2; 2.
KM Metal-binding; zinc; zinc-finger.

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SQ SEQUENCE 370 AA; 42003 MW; .2F4D54C9E9B6B4 CRC64;  
 Query Match 52.6%; Score 41; DB 5; Length 370;  
 Best Local Similarity 70.0%; Pred. No. 54;  
 Matches 7; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 4 KPEKCDKPR 13  
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 DB 233 KPEKCDRSGR 242

RESULT 15  
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 AC QVDDQ4: 01-MAY-2000 (TREMBLrel. 13, Created)  
 DT 01-OCT-2002 (TREMBLrel. 22, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE CG4413 protein.  
 GN CG4413.  
 OS Drosophila melanogaster (Fruit fly).  
 OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;  
 OC Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;  
 OC Ephydroidea; Drosophilidae; Drosophila.  
 NCBI\_TaxID=7227;  
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 RP SEQUENCE FROM N.A.  
 RC STRAIN=Berkley;  
 RX MEDLINE=20196006; PubMed=10731132;  
 RA Adams M.D., Celinker S.E., Holt R.A., Evans C.A., Gocayne J.D.,  
 RA Amaratides P.G., Scher S.E., Li P.W., Hoskins R.A., Galle R.F.,  
 RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,  
 RA Sutton R.G., Mortman J.R., Yandell M.D., Zhang Q., Chen L.X.,  
 RA Brandon R.C., Rogers Y.-H.C., Blazek R.G., Champe M., Pfeiffer B.D.,  
 RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,  
 RA Abril J.F., Adganyi A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,  
 RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,  
 RA Beeson K.Y., Benos P.V., Bernan B.P., Bhandari D., Bolshakov S.,  
 RA Borovna D., Botchan M.R., Bouck J., Brokstein P., Brotter P.,  
 RA Burris K.C., Busan D.A., Butler H., Cadien E., Center A., Chandra I.,  
 RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,  
 RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,  
 RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,  
 RA Durbin K.J., Evangelista C.C., Ferraz C., Ferreira S., Fleischmann W.,  
 RA Foster C., Garg J., Garg N.S., Gelbart W.M., Glasser K.,  
 RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,  
 RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,  
 RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C.,  
 RA Jafarizadeh M., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.,  
 RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,  
 RA Laake P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,  
 RA Liu X., Matrei B., McIntosh T.C., McLeod M.P., McPherson D.,  
 RA Merkulov G., Milshina N.V., Modyanty C., Morris J., Moshrefi A.,  
 RA Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,  
 RA Nelson D.R., Nelson K.A., Nixon K., Nuskern D.R., Pacle J.M.,  
 RA Palazolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,  
 RA Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,  
 RA Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,  
 RA Spier E., Spradling A.C., Stapleton M., Strong R., Sun E.,  
 RA Svitek R., Tector C., Turner R., Venter E., Wang A.H., Wang X.,  
 RA Wang Z.-Y., Wassarman D.A., Weinstein G.M., Weisenbach J.,  
 RA Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A., Zheng L.,  
 RA Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang M., Zhao Q., Zheng L.,  
 RA Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith H.O.,  
 RA Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.;  
 RT "The genome sequence of Drosophila melanogaster.";  
 RL Science 287:2185-2195(2000).  
 [2]  
 RP SEQUENCE FROM N.A.  
 RP Celinker S.E., Adams M.D., Krommiller B., Wan K.H., Holt R.A.,  
 RA Evans C.A., Gocayne J.D., Amaratides P.G., Brandon R.C., Rogers Y.,  
 RA Banzon J., An H., Baldwin D., Banzon J., Beeson K.Y., Busan D.A.,  
 RA Carlson J.W., Center A., Champe M., Davenport L.B., Dietz S.M.,

RA Dodson K., Dorsett V., Doup L.E., Doyle C., Dresnek D., Farfan D.,  
 RA Ferreira S., Friese E., Galle R.F., Garg N.S., George R.A.,  
 RA Gonzalez M., Houck J., Hoskins R.A., Hostin D., Howland T.J.,  
 RA Ibegwam C., Jalali M., Kruse D., Li P., Matrei B., Moshrefi A.,  
 RA McIntosh T.C., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,  
 RA Pacle J., Paragas V., Park S., Patel S., Pfeiffer B.,  
 RA Phouanavong S., Pittman G.S., Puri V., Richards S., Scheeler F.,  
 RA Stapleton M., Strong R., Svitek R., Tector C., Tyler D.,  
 RA Williams S.M., Zaveri J.S., Smith H.O., Venter J.C., Rubin G.M.;  
 RT "Sequencing of Drosophila melanogaster genome.";  
 RL Submitted (MAR-2000) to the EMBL/Genbank/DBJ databases.  
 [3]  
 RP SEQUENCE FROM N.A.  
 RP Misra S., Crosby M.A., Matthews B.B., Bayraktaroglu L., Campbell K.,  
 RA Hradecky P., Huang Y., Kaminker J.S., Prochuk S.E., Smith C.D.,  
 RA Tupy J.L., Bergman C., Bernan B., Carlson J.W., Celinker S.E.,  
 RA Clamp M., Drysdale R., Emmert D., Friese E., de Grey A., Harris N.,  
 RA Krommiller B., Marshall B., Millburn G., Richter J., Russo S.,  
 RA Searle S.M.J., Smith E., Shu S., Smutnick F., Whitfield E.,  
 RA Ashburner M., Gelbart W.M., Rubin G.M., Mungall C.J., Lewis S.E.;  
 RT "Annotation of Drosophila melanogaster genome.";  
 RL Submitted (MAR-2000) to the EMBL/Genbank/DBJ databases.  
 [4]  
 RP SEQUENCE FROM N.A.  
 RP Adams M.D., Celinker S.E., Gibbs R.A., Rubin G.M., Venter J.C.;  
 RL Submitted (MAR-2000) to the EMBL/Genbank/DBJ databases.  
 [5]  
 RP SEQUENCE FROM N.A.  
 RA Flybase; (SEP-2002) to the EMBL/Genbank/DBJ databases.  
 RL Submitted (SEP-2002) to the EMBL/Genbank/DBJ databases.  
 CC -1- SUBCELLULAR LOCATION: NUCLEAR (BY SIMILARITY).  
 DR EMBL; AE003728; AAF55736.2; -  
 DR Flybase; FBgn0038767; CG4413.  
 DR InterPro; IPR007087; Znf\_C2H2.  
 DR InterPro; IPR007086; Znf\_C2H2\_sub.  
 DR Pfam; PF00096; Zf\_C2H2\_5.  
 DR PRINTS; PR00048; ZINCFINGER.  
 DR ProDom; PD000003; Znf\_C2H2\_1.  
 DR SMART; SM00355; Znf\_C2H2\_5.  
 DR PROSITE; PS00028; ZINC\_FINGER\_C2H2\_1; 5.  
 DR PROSITE; PS50157; ZINC\_FINGER\_C2H2\_2; 5.  
 KW Metal-binding; Nuclear protein; Zinc; Zinc-finger.  
 SQ SEQUENCE 439 AA; 50327 MW; 236D6C4046B4EA2 CRC64;

Query Match 52.6%; Score 41; DB 5; Length 439;  
 Best Local Similarity 70.0%; Pred. No. 63;  
 Matches 7; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 4 KPEKCDKPR 13  
 |||||:  
 DB 233 KPEKCDRSGR 242

Search completed: January 30, 2004, 11:44:38  
 Job time: 14.4667 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:27:08 ; Search time 27.3846 Seconds  
(without alignments)  
115.924 Million cell updates/sec

Title: US-09-266-543-4  
Perfect score: 120  
Sequence: 1 CECRPKDKRTKPEKCDKPRR 20

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1107863 seqs, 158726573 residues

Total number of hits satisfying chosen parameters: 1107863

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Post-processing: Minimum Match 0%  
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Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Match	Query Length	ID	Description
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2	120	100.0	146	13	AA18545
3	120	100.0	146	13	AA18545
4	120	100.0	146	13	AA18545
5	120	100.0	146	13	AA18545
6	120	100.0	146	13	AA18545
7	104	86.7	105	21	AA18545
8	104	86.7	121	12	AA18545
9	104	86.7	121	14	AA18545

10	104	86.7	121	20	AA18545	Amino acid sequenc
11	104	86.7	121	20	AA18545	Human growth facto
12	104	86.7	121	20	AA18545	Mature human vascu
13	104	86.7	121	20	AA18545	Human vasculat end
14	104	86.7	121	20	AA18545	Parapox virus VEGF
15	104	86.7	147	16	AA18545	Human vasculat end
16	104	86.7	147	17	AA18545	VEGF121. Homo sap
17	104	86.7	147	19	AA18545	Amino acid sequenc
18	104	86.7	147	21	AA18545	VEGF encoded by cl
19	104	86.7	147	21	AA18545	Human vasculat end
20	104	86.7	147	21	AA18545	Human vasculat end
21	104	86.7	147	22	AA18545	Human VEGF splice
22	104	86.7	147	22	AA18545	Human vasculat end
23	104	86.7	147	22	AA18545	Human VEGF121. Ho
24	104	86.7	147	23	AA18545	Human vasculat end
25	104	86.7	148	17	AA18545	VEGF121 Cy8+4. Ho
26	104	86.7	148	17	AA18545	VEGF121 Cy8+2. Ho
27	104	86.7	148	17	AA18545	Human VEGF121/MK f
28	104	86.7	222	24	AA18545	Human VEGF121/HBNF
29	104	86.7	339	24	AA18545	Human KAP/VEGF121
30	104	86.7	367	24	AA18545	Human VEGF121/NL5
31	104	86.7	368	24	AA18545	Human VEGF121/angi
32	104	86.7	371	24	AA18545	Human VEGF121/NL1
33	104	86.7	377	17	AA18545	SAP-ALaMet-VEGF121
34	104	86.7	377	24	AA18545	Human VEGF121/Link
35	104	86.7	381	24	AA18545	SAR(Gly4Ser)1/Link
36	104	86.7	384	17	AA18545	SAR(Gly4Ser)1/Link
37	104	86.7	399	17	AA18545	SAR(Gly4Ser)1/Link
38	104	86.7	472	24	AA18545	SAR(Gly4Ser)1/Link
39	104	86.7	500	17	AA18545	Human Ang-2x CSD/K
40	104	86.7	506	17	AA18545	SAP-ALaMet-VEGF121
41	104	86.7	512	17	AA18545	SAR-ALaMet-VEGF121
42	104	86.7	514	17	AA18545	SAR(Gly4Ser)1/Link
43	104	86.7	524	17	AA18545	SAR(Gly4Ser)1/Link
44	104	86.7	524	17	AA18545	Fusion protein, VE
45	101	84.2	120	12	AA18545	Bovine vasculat en

#### ALIGNMENTS

RESULT 1	AA18545	AA18545 standard, peptide; 20 AA.
15-JAN-2001 (first entry)		
Immunogenic peptide fragment derived from FGF and/or VEGF.		
Immunogenic peptide; fibroblast growth factor; FGF, VEGF, cancer;		
vascular endothelial growth factor; hyperproliferative disorder;		
haemangioma; solid tumour; blood borne tumour; leukaemia; metastasis;		
telangiectasia; psoriasis; scleroderma; pyogenic granuloma;		
myocardial angiogenesis; Crohn's disease; plaque neovascularisation;		
arteriovenous malformation; corneal disease; rubecosis;		
neovascular glaucoma; diabetic retinopathy; retrolental fibroplasia;		
arthritis; diabetic neovascularisation; macular degeneration;		
wound healing; peptic ulcer; Helicobacter related disease; fracture;		
keloid; vasculogenesis; hematopoiesis; ovulation; menstruation;		
placentation; cat scratch fever.		
Unidentified.		
WO200053219-A2.		
14-SEP-2000.		
10-MAR-2000; 2000WO-US06320.		
11-MAR-1999; 99US-0266543.		

PA (ENTR-) ENTREMED INC.  
 XX  
 PI Holaday JW, Ruiz A, Madsen J;  
 XX  
 DR WPI; 2000-594263/56.  
 XX  
 PT An immunogenic composition useful for treating cancer or  
 PT hyperproliferative disorders comprises an immunogenic peptide fragment  
 PT of fibroblast growth factor and/or vascular endothelial growth factor -  
 XX  
 PS Claim 13; Page 28; 95pp; English.  
 XX  
 CC AAB18542-51 represent immunogenic peptide fragments of fibroblast  
 CC growth factor (FGF) and/or vascular endothelial growth factor (VEGF).  
 CC The peptides are used to produce immunogenic compositions. The  
 CC immunogenic composition is used for treating cancer or  
 CC hyperproliferative disorders, especially haemangioma, solid tumours,  
 CC blood borne tumours, leukaemia, metastasis, telangiectasia, psoriasis,  
 CC scleroderma, pyogenic granuloma, myocardial angiogenesis, Crohn's  
 CC disease, plaque neovascularisation, arteriovenous malformations,  
 CC corneal diseases, rubeosis, neovascular glaucoma, diabetic retinopathy,  
 CC retrolental fibroplasia, arthritis, diabetic neovascularisation, macular  
 CC degeneration, wound healing, peptic ulcer, Helicobacter related  
 CC diseases, fractures, keloids, vasculogenesis, hematopoiesis, ovulation,  
 CC menstruation, placental and cat scratch fever.  
 XX  
 SQ Sequence 20 AA;  
 XX  
 Query Match 100.0%; Score 120; DB 21; Length 20;  
 Best Local Similarity 100.0%; Pred. No. 2.9e-09;  
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CECRPKQRTKPEKCDKPRR 20  
 DB 1 CECRPKQRTKPEKCDKPRR 20  
 XX  
 RESULT 2  
 AAR22348  
 ID AAR22348 standard; Protein; 146 AA.  
 XX  
 AC AAR22348;  
 XX  
 DT 29-JUL-1992 (first entry)  
 XX  
 DE Alternative form of VEGF mature A-subunit with 120 amino acids.  
 XX  
 KW Rat glioma cell; GS-3U; conditioned medium; heterodimer; VEGF-II;  
 KW homodimer; mitogenesis; vascular repair; blood vessel implant;  
 KW polymerase chain reaction; alternative splicing.  
 XX  
 OS Rattus.  
 XX  
 FH Key Location/Qualifiers  
 FT Peptide 1..26  
 FT /label= signal  
 FT Protein 27..146  
 FT /label= VEGF\_A-subunit  
 FT /note= "120 amino acids long"  
 FT  
 PN EP476983-A.  
 XX  
 PD 25-MAR-1992.  
 XX  
 PF 18-SEP-1991; 91EP-0308489.  
 XX  
 PR 21-SEP-1990; 90US-0586640.  
 PR 21-SEP-1990; 90US-0586638.  
 XX  
 PA (MERI ) MERCK & CO INC.  
 XX  
 PI Bayne ML, Conn GL, Thomas KA;  
 XX

DR WPI; 1992-098641/13.  
 DR N-PSDB; AAQ23039.  
 XX  
 PT Vascular endothelial cell growth factor II - used as coating for  
 PT artificial blood vessels or to promote tissue repair  
 XX  
 PS Example 9; Page 14 and Fig 4; 38pp; English.  
 XX  
 CC Multiple cDNAs encoding alternative forms of the VEGF A-subunit  
 CC were amplified using PCR primers as in AAQ23049 and AAQ23050. Three  
 CC sets of clones were identified. Clone #12 encoded the 164 amino acid  
 CC secreted form of VEGF A-subunit (see AAR22347). Clone #14 has a 135 bp  
 CC deletion and thus encodes a 120 amino acid form and Clone #16 has a  
 CC 72bp insertion and encodes a 188 amino acid mature protein (AAR22351).  
 CC The deleted region lies between the second base of the Asn140 codon  
 CC and the third base of the Arg184 codon. The 120 amino acid mature  
 CC protein has Asn140 converted to Lys140.  
 CC  
 SQ Sequence 146 AA;  
 XX  
 Query Match 100.0%; Score 120; DB 13; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 1.9e-08;  
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CECRPKQRTKPEKCDKPRR 20  
 DB 127 CECRPKQRTKPEKCDKPRR 146  
 XX  
 RESULT 3  
 AAR27354  
 ID AAR27354 standard; Protein; 146 AA.  
 XX  
 AC AAR27354;  
 XX  
 DT 25-MAR-2003 (updated)  
 DT 25-FEB-1993 (first entry)  
 XX  
 DE Sequence of vascular endothelial cell growth factor VEGF A  
 DE 146 amino acid residue subunit.  
 XX  
 KW Vascular development; mitogen; blood vessel;  
 KW vascular endothelial growth factor; neovascularisation.  
 XX  
 OS Rattus.  
 XX  
 PN EP506477-A1.  
 XX  
 PD 30-SEP-1992.  
 XX  
 PF 27-MAR-1992; 92EP-0302750.  
 XX  
 PR 28-MAR-1991; 91US-0676436.  
 XX  
 PA (MERI ) MERCK & CO INC.  
 XX  
 PI Bayne ML, Thomas KA;  
 XX  
 DR WPI; 1992-325745/40.  
 DR N-PSDB; AAQ28953.  
 XX  
 PT Vascular endothelial cell growth factor sub-units - which stimulate  
 PT vascular endothelial cell growth, used for inducing tissue repair  
 PT and growth.  
 XX  
 PS Disclosure; Fig 4; 61pp; English.  
 XX  
 CC The full length coding region of the A subunit or monomer of VEGF  
 CC is determined from three sets of overlapping cDNA clones. Degrade  
 CC oligo. primers based on the amino acid sequences  
 CC Phe-Met-Asp-Val-Tyr-Gln from polypeptide 142 (residues 42-47) and  
 CC Cys-Lys-Asn-Thr-Asp from polypeptide T38 (residues 164-168) were used

CC to PCR amplify the central region of the cDNA for VEGF A chain.  
 CC A single band migrating at 420 bp was gel purified, digested with SalI,  
 CC ligated into pGEM3zf(+) and sequenced. The nucleotide sequence  
 CC obtained (94238) was used to design antisense and sense PCR primers  
 CC to amplify the 5' and 3' ends of the cDNA. These 5' and 3' clones  
 CC are denoted p5-15 and pM3, respectively. In addition to the cDNA  
 CC coding the 164 amino acid secreted form identified by protein  
 CC sequencing, two alternatively spliced cDNAs encoding a 146 amino acid  
 CC and a 214 amino acid forms are cloned and sequenced.  
 CC (Updated on 25-MAR-2003 to correct PN field.)  
 CC (Updated on 25-MAR-2003 to correct PD field.)

XX Sequence 146 AA;

Query Match 100.0%; Score 120; DB 13; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 1.9e-08;  
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPEKCDKPRR 20  
 DB 127 CECRPKQRTKPEKCDKPRR 146

RESULT 4  
 AAM53640  
 ID AAM53640 standard; Protein; 146 AA.

XX AAM53640;

XX 30-JUL-1998 (first entry)

XX Vascular endothelial growth factor II A subunit variant.

XX Vascular endothelial cell growth factor; VEGF II; rat; glioma cell;  
 XX mitogenesis; blood vessel growth; artificial blood vessel.

XX Rattus sp.

XX US5726152-A.

XX 10-MAR-1998.

XX 31-AUG-1994; 94US-0299185.

XX 31-AUG-1994; 94US-0299185.

XX 21-SEP-1990; 90US-0586638.

XX 05-JAN-1993; 93US-0000834.

XX (MERI ) MERCK & CO INC.

XX Bayne ML, Conn GL, Thomas KA;

XX WPI, 1998-206007/18.

XX Vascular endothelial growth factor proteins - having specified A and  
 XX B sub-units

XX Claim 1; Page -: 46pp; English.

XX The present sequence represents a rat vascular endothelial growth factor  
 CC II (VEGF II) A subunit variant with a conversion of Asn 140 to Lys 140,  
 CC and the deletion of His 141 to Arg 184 from the wild-type given in  
 CC AAM53639. The present invention describes: (1) a mammalian VEGF II  
 CC protein comprising an A subunit from AAM53639, AAM53640 or AAM53641, and  
 CC a B subunit from AAM53638, AAM53639 or the first 115-135 amino acids of  
 CC AAM53638; and (2) a mammalian VEGF comprising a heterodimer or homodimer  
 CC of B subunits. The growth factor is used for promoting vascular  
 CC development and repair and for promoting tissue repair.  
 CC N.B. The present sequence is not given in the specification but is  
 CC derived from Fig 5 as stated in the claim.

XX Sequence 146 AA;

Query Match 100.0%; Score 120; DB 19; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 1.9e-08;  
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPEKCDKPRR 20  
 DB 127 CECRPKQRTKPEKCDKPRR 146

RESULT 5  
 AAY57029  
 ID AAY57029 standard; Protein; 146 AA.

XX AAY57029;

XX 15-FEB-2000 (first entry)

XX VEGFA 146 amino acid residue subunit sequence.

XX VEGF; vascular endothelial growth factor; A subunit; tissue growth;  
 XX vascular development; artificial blood vessel; repair; human.

XX Homo sapiens.

XX US5994300-A.

XX 30-NOV-1999.

XX 20-SEP-1993; 93US-0124259.

XX 28-MAR-1991; 91US-0676436.

XX (MERI ) MERCK & CO INC.

XX Thomas KA, Bayne ML;

XX WPI, 2000-038268/03.

XX N-PSDB; AA239827.

XX Purified and isolated vascular endothelial cell growth factor C subunit  
 XX for the induction of tissue repair or growth -

XX Disclosure; Fig 3, 58pp; English.

XX This is the amino acid sequence of a 146 amino acid residue A subunit of  
 CC vascular endothelial cell growth factor (VEGF). The invention relates to  
 CC a purified and isolated VEGF C subunit amino acid sequence AAY57025.  
 CC VEGF exists in various microheterogeneous forms, and is useful for the  
 CC promotion of vascular development and repair. The invention also relates  
 CC to human VEGF heterodimers AC or BC and homodimer CC, where A, B and C  
 CC are subunit amino acid sequences. The VEGF AC, BC or CC amino acid  
 CC sequences can be used in a tissue repairing pharmaceutical composition.  
 CC The novel growth factors are useful for the production or coverage of  
 CC artificial blood vessels with vascular endothelial cell. They are also  
 CC useful for the induction of tissue growth and repair.

XX Sequence 146 AA;

Query Match 100.0%; Score 120; DB 21; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 1.9e-08;  
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPEKCDKPRR 20  
 DB 127 CECRPKQRTKPEKCDKPRR 146

RESULT 6  
 AAB37505  
 ID AAB37505 standard; Protein; 146 AA.

XX AAB37505;

XX

DT 26-FEB-2001 (first entry)  
 XX Rat VEGF subunit A SEQ ID NO: 33.  
 XX Vascular endothelial growth factor; VEGF C subunit; cell division;  
 KW artificial blood vessel; tissue growth; tissue repair.  
 XX Rattus sp.  
 XX US6140073-A.  
 PN 31-OCT-2000.  
 XX 16-JAN-1996; 96US-0586039.  
 PF 20-SEP-1993; 93US-0124259.  
 PR 28-MAR-1991; 91US-0676436.  
 XX (MERI ) MERCK & CO INC.  
 XX Thomas KA, Bayne ML;  
 DR WPI; 2001-014858/02.  
 DR N-PSDB; AAC83512.  
 XX Human vascular endothelial cell growth factor (VEGF) C subunit DNA and  
 PT protein, useful for promoting vascular development and repair, and for  
 PT promoting tissue repair, especially for treating wounds in mammals -  
 XX Example 9; Fig 4; 58pp; English.  
 XX The present invention is concerned with the human vascular endothelial  
 CC growth factor (VEGF) C subunit. VEGF is a vascular endothelial cell  
 CC mitogen and can be used to promote vascular development and repair. The C  
 CC subunit may exist as a homodimer or a heterodimer with the VEGF A or B  
 CC subunit. VEGF can be used in the treatment of wounds of mammals, to cover  
 CC artificial blood vessels with vascular endothelial cells, in the  
 CC production of artificial blood vessels and to induce tissue repair or  
 CC growth.  
 CC Sequence 146 AA;  
 SQ

Query Match 100.0%; Score 120; DB 22; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 1.9e-08;  
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPKCKDKPRR 20  
 DB 127 CECRPKQRTKPKCKDKPRR 146

RESULT 7  
 AAB53387 standard; Protein; 105 AA.  
 ID AAB53387;  
 AC AAB53387;  
 XX 09-MAR-2001 (first entry)  
 DT Human colon cancer antigen protein sequence SEQ ID NO:927.  
 DE Human colon cancer antigen protein sequence SEQ ID NO:927.  
 XX Human; colon cancer; colon cancer antigen; diagnosis; detection;  
 KW identification; cytostatic; cardioactive; neuroprotective; vulnery;  
 KW immunomodulatory; muscular; gynaecological; gastrointestinal;  
 KW nephrotropic; antiinfective; antibacterial; gene therapy; wound;  
 KW neural disorder; immune system disorder; muscular disorder;  
 KW reproductive disorder; gastrointestinal disorder; renal disorder;  
 KW infectious disease; cardiovascular disorder.  
 XX Homo sapiens.  
 OS WO200055351-A1.  
 XX

PD 21-SEP-2000.  
 XX 08-MAR-2000; 2000WO-US05883.  
 PF 12-MAR-1999; 99US-0124270.  
 PR (HUMA-) HUMAN GENOME SCI INC.  
 XX Rosen CA, Ruben SM;  
 PI WPI; 2000-587534/55.  
 DR N-PSDB; AAC98144.  
 XX Colon cancer associated gene sequences, referred to as colon cancer  
 PT antigens, useful for the treatment, prevention, and diagnosis of colon  
 PT disorders such as colon cancer -  
 XX Claim 11; Page 1486; 2104pp; English.  
 XX AAC97991 to AAC98763 encode the human colon cancer associated proteins,  
 CC called human colon cancer antigens, given in AAB53234 to AAB54006. The  
 CC human colon cancer antigens can have cytostatic, cardioactive, muscular;  
 CC neuroprotective, immunomodulatory, gynaecological, gastrointestinal,  
 CC vulnery, nephrotropic, antiinfective and antibacterial activities, and  
 CC can be used in gene therapy. The colon cancer antigen polynucleotides,  
 CC proteins and antibodies to the proteins are useful for the prevention,  
 CC treatment and diagnosis of colon disorders, such as colon cancer. The  
 CC polynucleotides may be used in diagnostics and research, such as for  
 CC chromosome identification, and as hybridisation probes. The proteins  
 CC may also be used to prevent diseases such as neural disorders, immune  
 CC system disorders, muscular disorders, reproductive disorders,  
 CC gastrointestinal disorders, wounds, renal disorders, infectious  
 CC diseases, and cardiovascular disorders. AAC98764 to AAC98772 and  
 CC AAB54007 represent sequences used in the exemplification of the present  
 CC invention.  
 CC Sequence 105 AA;  
 SQ

Query Match 86.7%; Score 104; DB 21; Length 105;  
 Best Local Similarity 85.0%; Pred. No. 1.8e-06;  
 Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPKCKDKPRR 20  
 DB 86 CECRPKQRTKPKCKDKPRR 105

RESULT 8  
 AAR11385 standard; Protein; 121 AA.  
 ID AAR11385;  
 AC AAR11385;  
 XX 25-MAR-2003 (updated)  
 DT 08-MAY-1991 (first entry)  
 DE Human vascular endothelial cell growth factor 121.  
 KW Bovine vascular endothelial cell growth factor; angiogenesis;  
 KW wound healing; hVEGF; PDGF.  
 XX Bos taurus.  
 OS WO9102058-A.  
 PN 21-FEB-1991.  
 PD 27-JUL-1990; 90WO-US04227.  
 PF 14-DEC-1989; 89US-0450883.  
 PR 27-JUL-1989; 89US-0387545.  
 XX (CALD ) CALIFORNIA BIOTECHNOLOGY INC.  
 XX

XX Tischer ER, Abrahman, Fiddes JC, Mitchell RL;  
 PI MPI: 1991-073534/10.  
 DR N-PSDB; AAQ11099.  
 XX  
 PT DNA encoding vascular endothelial cell growth factor - used for  
 PT producing the factor for angiogenesis and re-endothelialisation  
 PT in wound healing  
 XX  
 PS Disclosure; Fig 7(1-2); 94pp; English.  
 XX  
 CC The two forms of VEGF (AAQ10797 and AAQ10917) which arise through  
 CC different message splicing, have different properties. In partic.  
 CC hVEGF121 does not bind to heparin leaving more of the protein free to  
 CC bind to VEGF receptor and increase the half-life and distribution of  
 CC the protein in circulation, whereas hVEGF165 binds heparin strongly.  
 CC The product can be used for angiogenesis and re-endothelialisation  
 CC of inner vascular surfaces in wound healing, e.g. treatment of full-  
 CC thickness wounds such as dermal ulcers, venous ulcers and diabetic  
 CC ulcers, burns, in surgery, in balloon angioplasty and for the in  
 CC vitro culturing of endothelial cells. Hybrid growth factors of PDGF  
 CC and VEGF can exhibit a mitogenic profile between each factor and  
 CC can be used for wound healing or as inhibitors of angiogenesis for  
 CC e.g. preventing the growth of tumours.  
 CC VEGF analogues in which CYS residues are substid. are more stable.  
 CC See also AAQ10791-93; AAQ10796-97; AAQ10806-08 and AAQ1099.  
 CC (Updated on 25-MAR-2003 to correct PA field.)  
 CC  
 SQ Sequence 121 AA;

Query Match 86.7%; Score 104; DB 12; Length 121;  
 Best Local Similarity 85.0%; Pred. No. 2.1e-06;  
 Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CECRPKQRTKPEKCDKPRR 20  
 ||||| : |||||  
 DB 102 CECRPKQRTKPEKCDKPRR 121

RESULT 9  
 AAR42607  
 ID AAR42607 standard; Protein; 121 AA.  
 XX  
 AC AAR42607;  
 DT 25-MAR-2003 (updated)  
 DT 28-OCT-1993 (first entry)  
 XX  
 DE Human VEGF-121.  
 XX  
 KM Angiogenesis; wound healing; mitogen; vascular endothelial cells;  
 KM Vascular Endothelial Cell Growth Factor; hVEGF-165; hVEGF-121.  
 XX  
 OS Homo sapiens.  
 XX  
 FH Key Location/Qualifiers  
 FT Misc-difference 7 /note= "Inserted amino acid relative to bVEGF"  
 FT Misc-difference 115 /note= "Lys 115 of hVEGF-121 is replaced by 44  
 FT amino acids encoded by an alternatively  
 FT spliced exon in hVEGF-165 (see AAR38921)"  
 XX  
 PN US5219739-A.  
 PD 15-JUN-1993.  
 PF 27-JUL-1990; 90US-0559041.  
 XX  
 PR 27-JUL-1989; 89US-0387545.  
 PR 14-DEC-1989; 89US-0450883.  
 PR 27-JUL-1990; 90US-0559041.

XX (SCIO-) SCIOS NOVA INC.  
 PA  
 XX  
 PI Abraham JA, Fiddes JC, Mitchell RL, Tischer EG;  
 XX  
 DR MPI; 1993-205302/25.  
 DR N-PSDB; AAQ49601.  
 XX  
 PT Isolated DNA sequences, expression vectors and transformant cells  
 PT used for large scale produ. of vascular endothelial cell growth  
 PT factor, for treating wounds in which neo-vascularisation is  
 PT required  
 XX  
 PS Claim 3; Fig 7; 40pp; English.  
 XX  
 CC The sequence of AAQ44260 contains an open reading frame corresponding  
 CC to the 165 amino acid human vascular endothelial cell growth  
 CC factor (hVEGF-165, see AAR38921). Alternative splicing of the  
 CC sequence gives a shorter coding sequence which encodes the 121  
 CC amino acid hVEGF (see AAR42607). The full-length coding sequences can  
 CC be generated using PCR with human foetal vascular smooth muscle  
 CC poly-A+ RNA as template.  
 CC (Updated on 25-MAR-2003 to correct PF field.)  
 CC  
 SQ Sequence 121 AA;

Query Match 86.7%; Score 104; DB 14; Length 121;  
 Best Local Similarity 85.0%; Pred. No. 2.1e-06;  
 Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CECRPKQRTKPEKCDKPRR 20  
 ||||| : |||||  
 DB 102 CECRPKQRTKPEKCDKPRR 121

RESULT 10  
 AAY23943  
 ID AAY23943 standard; peptide; 121 AA.  
 XX  
 AC AAY23943;  
 DT 21-SEP-1999 (first entry)  
 XX  
 DE Amino acid sequence of vascular endothelial growth factor (VEGF) 121.  
 XX  
 KM Vascular endothelial growth factor; VEGF; VEGF 121; monoclonal antibody.  
 XX  
 OS Homo sapiens.  
 XX  
 PN JP11176593-A.  
 PD 06-JUL-1999.  
 XX  
 PF 24-DEC-1997; 97JP-0365972.  
 XX  
 PR 24-DEC-1997; 97JP-0365972.  
 XX  
 PA (FURE ) FUJIREBIO KK.  
 XX  
 DR MPI; 1999-437318/37.  
 XX  
 PT New VEGF121-specific monoclonal antibody - useful for measuring  
 PT levels of VEGF121  
 XX  
 PS Disclosure; Page 5; 6pp; Japanese.  
 XX  
 CC The present sequence represents vascular endothelial growth factor  
 CC (VEGF) 121. The specification describes a monoclonal antibody which  
 CC is specific to VEGF 121, and a hybridoma producing this antibody. The  
 CC antibody is used in a method for measuring the amount of VEGF 121  
 CC present in a sample.  
 XX  
 SQ Sequence 121 AA;

Query Match 86.7%; Score 104; DB 20; Length 121;  
 Best Local Similarity 85.0%; Pred. No. 2, 1e-06;  
 Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPEKCDKPRR 20  
 ||||| : |||||  
 DB 102 CECRPKQRTKPEKCDKPRR 121

## RESULT 11

AA508278  
 ID AAY08278 standard; Protein; 121 AA.

XX AAY08278;

XX 14-JUL-1999 (first entry)

XX Human growth factor protein fragment VEGF-A121.

XX Growth factor; human; dimer; cysteine knot; cellular inclusion body;  
 KW pharmaceutical.

XX Homo sapiens.

XX DE19748734-A1.

XX 06-MAY-1999.

XX 05-NOV-1997; 97DE-1048734.

XX 05-NOV-1997; 97DE-1048734.

XX (GBFB) GES BIOTECHNOLOGISCHE FORSCHUNG MBH.

XX Erdmann H, Kaerst U, Mueller C, Rinas U, Weich H;

XX WPI; 1999-278785/24.

XX Preparing active growth factor dimers from inclusion bodies in high  
 PT yield

XX Claim 14; Page 7; 14pp; German.

CC This invention describes the novel preparation of biologically active  
 CC dimers of recombinant human growth factors of the cysteine knot family  
 CC starting from cellular inclusion bodies. Such dimers are useful in  
 CC pharmaceutical compositions and the method provides yields of 31-39.7%,  
 CC in examples, compared with about 10% for the conventional method (see  
 CC Biochemistry, 28 (1989) 2956). AAY08278-Y08301 are human growth factor  
 CC protein fragments used in the method of the invention.

XX Sequence 121 AA;

Query Match 86.7%; Score 104; DB 20; Length 121;  
 Best Local Similarity 85.0%; Pred. No. 2, 1e-06;

Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPEKCDKPRR 20  
 ||||| : |||||  
 DB 102 CECRPKQRTKPEKCDKPRR 121

## RESULT 12

AA50428  
 ID AAB50428 standard; Protein; 121 AA.

XX AAB50428;

XX 13-MAR-2001 (first entry)

XX Mature human vascular endothelial growth factor polypeptide.

KW Human; vascular endothelial growth factor; VEGF; VEGF dimer;  
 KW hypotensive; litholytic; nephrotoxic; antiarteriosclerotic;  
 KW anti-inflammatory; angiogenesis; vascular remodeling; injury; wound;  
 KW peripheral arterial disease; coronary artery disease; hypoxia;  
 KW essential hypertension; microvascular angiopathy; hypercapnia;  
 KW polycystic kidney disease; vascular endothelial cell repair;  
 KW lung disease; kidney disease; inflammatory bowel disease.

XX Homo sapiens.

XX WO200071716-A2.

XX 30-NOV-2000.

XX 18-MAY-2000; 2000WO-US13636.

XX 20-MAY-1999; 99US-0135312.

XX 20-JAN-2000; 2000US-0177407.

XX (SCIO-) SCIOS INC.

XX Jue RA, Schellenberger U, Strathis PA, Adriaenssens PI, Abraham JA;  
 PI Baldwin PA, Pollitt NS;

XX WPI; 2001-041064/05.

XX N-PsDB; AAC90473.

XX Vascular endothelial growth factor dimer, useful for treating essential  
 PT hypertension, polycystic kidney diseases, microvascular angiodysplasia and  
 PT coronary artery disease, comprising two monomeric subunits

XX Claim 1; Fig 1; 61pp; English.

CC The present sequence encodes a monomer of a vascular endothelial growth  
 CC factor (VEGF) dimer. The dimer comprises a first and a second monomer,  
 CC each comprising at least amino acids 11-116 of a defined 147 amino acid  
 CC sequence, or a sequence having at least 90% identity to the defined  
 CC sequence, and retaining a cysteine at or corresponding to position 116,  
 CC which is disulphide-bonded to an additional extraneous cysteine. The  
 CC VEGF dimer is useful for inducing angiogenesis and vascular remodeling,  
 CC treating peripheral arterial disease, coronary artery disease, essential  
 CC hypertension, microvascular angiodysplasia and polycystic kidney disease,  
 CC and repair of vascular endothelial cell layers. It is also useful for  
 CC treating injuries, wounds, hypoxia, hypercapnia, pulmonary dysfunction,  
 CC kidney diseases, diseases arising from disordered transport of solutes  
 CC and fluids across the intestinal epithelium including inflammatory bowel  
 CC disease, and disorders due to accumulation of ascites in the  
 CC peritoneum.

XX Sequence 121 AA;

Query Match 86.7%; Score 104; DB 22; Length 121;  
 Best Local Similarity 85.0%; Pred. No. 2, 1e-06;

Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPEKCDKPRR 20  
 ||||| : |||||  
 DB 102 CECRPKQRTKPEKCDKPRR 121

## RESULT 13

AA52329  
 ID AAE32329 standard; Protein; 121 AA.

XX AAE32329;

XX 24-MAR-2003 (first entry)

XX Human vascular endothelial growth factor (VEGF)121.

KW Vascular endothelial growth factor; VEGF; angiogenesis; wound healing;  
 KW bone growth; osteoporosis; osteoarthritis; bone reconstruction; ulcer;  
 KW lesion; injury; trauma; periodontal condition; protein therapy; human.

XX Homo sapiens.  
 OS  
 XX  
 PN MO200283851-A2.  
 XX  
 PD 24-OCT-2002.  
 XX  
 PF 10-APR-2002; 2002MO-US11406.  
 XX  
 PR 10-APR-2001; 2001US-0832355.  
 XX  
 PA (GENV-) GENVEC INC.  
 XX  
 PI Kovesdi I, Kessler PD;  
 XX  
 DR WPI: 2003-075536/07.  
 XX  
 DR N-PSDB; AAD49965.  
 XX  
 PT New fusion protein comprising a non-heparin-binding vascular  
 PT endothelial growth factor (VEGF) peptide portion and a non-VEGF peptide  
 PT portion, useful for promoting angiogenesis and/or bone growth in  
 PT mammals  
 XX  
 PS Disclosure; Page 118; 191pp; English.  
 XX  
 CC The invention relates to a fusion protein comprising non-heparin binding  
 CC vascular endothelial growth factor (VEGF) peptide portion and a non-VEGF  
 CC peptide portion useful for promoting angiogenesis and/or bone growth in  
 CC mammalian host. The fusion protein is useful for promoting angiogenesis,  
 CC wound healing and bone growth. Compositions containing bone growth  
 CC promoting fusion protein can be used to treat osteoporosis, rheumatoid  
 CC or osteoarthritis, to improve poor bone healing, to promote implant  
 CC integration and function of artificial joints and to facilitate bone  
 CC reconstruction. They can also be used to treat e.g. ulcers, lesions,  
 CC injuries, burns, trauma, periodontal conditions, lacerations and other  
 CC conditions. The invention is also useful in protein therapy. The present  
 CC sequence is human VEGF121 protein.  
 XX  
 SQ Sequence 121 AA;  
 XX  
 QY Query Match 86.7%; Score 104; DB 24; Length 121;  
 Best Local Similarity 85.0%; Pred. No. 2.1e-06;  
 Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
 XX  
 DB 1 CECRPKDKRTKPEKCDKPRR 20  
 102 CECRPKDKRARQKCDKPRR 121  
 XX  
 RESULT 14  
 AAY33438  
 ID AAY33438 standard; Protein; 146 AA.  
 XX  
 AC AAY33438;  
 XX  
 DT 13-DEC-1999 (first entry)  
 XX  
 DE Parapox virus VEGF growth factor homologue protein fragment 5.  
 XX  
 KW D1701; vascular endothelial growth factor; PPV-VEGF; angiogenesis;  
 KW endothelial cell proliferation; gene therapy; diagnostic; tissue repair;  
 KW immunomodulation; dendritic cell differentiation; DNA vaccine.  
 XX  
 OS Parapoxvirus.  
 XX  
 PN DE19813774-A1.  
 XX  
 PD 30-SEP-1999.  
 XX  
 PF 27-MAR-1998; 98DE-1013774.  
 XX  
 PR 27-MAR-1998; 98DE-1013774.  
 XX  
 DR

PA (PLAC) MAX PLANCK GES FOERDERUNG WISSENSCHAFTEN.  
 XX  
 PI Dehio C, Roettgen M, Rziha H, Buettner M;  
 XX  
 DR WPI: 1999-552202/47.  
 XX  
 PT Homolog of human vascular endothelial growth factor useful for  
 PT stimulating endothelial cell proliferation, e.g. for stimulating  
 PT angiogenesis or tissue repair or for immunomodulation  
 XX  
 PS Disclosure; Fig 2; 16pp; German.  
 XX  
 CC This invention describes a novel polypeptide that is a parapox virus  
 CC homolog of human vascular endothelial growth factor (PPV-VEGF) and  
 CC stimulates endothelial cell proliferation. The products of the invention  
 CC have angiogenic activity. The polypeptide can be used in pharmaceutical  
 CC compositions for therapeutic or diagnostic use, e.g. for stimulating  
 CC angiogenesis or tissue repair or for immunomodulation, e.g. by  
 CC stimulating endothelial cell proliferation or inhibiting dendritic cell  
 CC differentiation. Nucleic acids encoding the polypeptide can be used in  
 CC pharmaceutical compositions for DNA vaccination or gene therapy. This  
 CC sequence represents a protein fragment of a parapox virus D1701 vascular  
 CC endothelial growth factor (VEGF) homologue.  
 XX  
 SQ Sequence 146 AA;  
 XX  
 QY Query Match 86.7%; Score 104; DB 20; Length 146;  
 Best Local Similarity 85.0%; Pred. No. 2.5e-06;  
 Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
 XX  
 DB 1 CECRPKDKRTKPEKCDKPRR 20  
 127 CECRPKDKRARQKCDKPRR 146  
 XX  
 RESULT 15  
 AAR91075  
 ID AAR91075 standard; Protein; 147 AA.  
 XX  
 AC AAR91075;  
 XX  
 DT 14-MAY-1996 (first entry)  
 XX  
 DE Human vascular endothelial growth factor-121, VEGF-121.  
 XX  
 KW Conjugate; growth factor; RGF; cytotoxin; saporin; eye; regulation;  
 KW cell proliferation; psoriasis; pterygia; corneal clouding; cancer;  
 KW rheumatoid arthritis; vascular endothelial; fibroblast; epidermal;  
 KW heparin binding.  
 XX  
 OS Homo sapiens.  
 XX  
 FH Key  
 FH Peptide 1..26  
 FT /label= sig\_peptide  
 FT Protein 27..147  
 FT /label= VEGF-121  
 XX  
 PN WO9524928-A2.  
 XX  
 PD 21-SEP-1995.  
 XX  
 PF 15-MAR-1995; 95WO-US03448.  
 XX  
 PR 15-MAR-1994; 94US-0213447.  
 PR 15-MAR-1994; 94US-0213446.  
 XX  
 PA (PRIZ-) PRIZM PHARM INC.  
 XX  
 PI Baird JA, Houston LU, Nova MP, Sosnowski BA;  
 XX  
 DR WPI: 1995-336820/43.  
 DR N-PSDB; AAO99080.

XX New conjugates of growth factor receptor ligand and targetted agent  
 PT - partic. DNA or cytotoxin, used to control cell proliferation in  
 PT the eye, e.g. to prevent growth of pterygii and corneal clouding  
 XX  
 PS Disclosure; Page 184-185; 204pp; English.  
 XX

CC AAR91075-R91078 are human vascular endothelial growth factors (VEGFs).  
 CC DNA encoding a VEGF can be used to create a fusion protein (FP), and  
 CC the cDNA of which includes a nucleic acid binding domain (NABD) and  
 CC encodes a heparin binding growth factor, HEPGF (e.g. VEGF, FGF, HBEGF),  
 CC a protein synthesis inhibitor and opt. a linker imparting flexibility  
 CC to the FP. The FP can be used to target a protein synthesis inhibitor,  
 CC an antisense DNA sequence or an inhibitor of elongation factor 2, to a  
 CC cell carrying a HEPGF receptor. The conjugates of the invention are  
 CC used to inhibit cell proliferation in cells carrying the particular  
 CC growth factor receptor. A specific application is to prevent  
 CC excessive proliferation of epithelial cells, fibroblasts and  
 CC keratinocytes in the anterior eye after surgery, partic. to prevent  
 CC recurrence of pterygii after surgical removal, closure of  
 CC trabeculectomy after glaucoma surgery and corneal clouding after  
 CC excimer laser treatment. Other conditions which may be treated include  
 CC tumours, restenosis, psoriasis, Dupuytren's contracture, diabetic  
 CC complications, Kaposi's sarcoma and rheumatoid arthritis.  
 XX

SQ Sequence 147 AA:

Query Match 86.7%; Score 104; DB 16; Length 147;  
 Best Local Similarity 85.0%; Pred. No. 2.5e-06;  
 Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CECRPKQDRTKPEKCDKPPR 20  
 |||||:|||||  
 DB 128 CECRPKQDRTKPEKCDKPPR 147

Search completed: January 30, 2004, 11:40:06  
 Job time : 27.5096 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:35:33 ; Search time 8.51282 Seconds  
(without alignments)  
99.405 Million cell updates/sec

Title: US-09-266-543-4

Sequence: 1 CECRPKDKRTPEKCDKPR 20

Scoring table: BLOSUM62

Gapop 10.0, Gapext 0.5

Searched: 328717 seqs, 42310858 residues

Total number of hits satisfying chosen parameters: 328717

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database: Issued Patents, AA:\*

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2: /cgn2\_6/ptodata/1/1aa/5B\_COMB.pep:\*  
3: /cgn2\_6/ptodata/1/1aa/6A\_COMB.pep:\*  
4: /cgn2\_6/ptodata/1/1aa/6B\_COMB.pep:\*  
5: /cgn2\_6/ptodata/1/1aa/6C\_COMB.pep:\*  
6: /cgn2\_6/ptodata/1/1aa/backfile1.pep:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	120	100.0	146	3	US-08-586-039B-33
2	120	100.0	146	4	US-09-699-769-33
3	104	86.7	121	6	5194596-19
4	104	86.7	121	6	5219739-20
5	104	86.7	147	3	US-08-807-992B-1
6	104	86.7	147	4	US-09-392-932-1
7	104	86.7	147	4	US-08-706-054A-4
8	104	86.7	147	4	US-09-574-708A-2
9	104	86.7	147	4	US-09-313-299-4
10	101	84.2	120	6	5194596-9
11	101	84.2	120	6	5219739-9
12	99	82.5	147	4	US-09-431-888-3
13	86.5	72.1	136	4	US-09-037-983C-15
14	86	71.7	137	4	US-09-037-983C-17
15	85.5	71.2	138	4	US-09-037-983C-16
16	85.5	71.2	164	4	US-09-244-583-24
17	85	70.8	189	1	US-08-469-427A-15
18	85	70.8	190	2	US-08-569-063C-20
19	85	70.8	190	4	US-08-586-039B-31
20	85	70.8	190	4	US-09-699-769-31
21	83	69.2	214	4	US-08-586-039B-35
22	83	69.2	214	4	US-09-699-769-35
23	82	68.3	145	3	US-08-784-551C-2
24	82	68.3	145	4	US-09-392-932-2
25	82	68.3	145	4	US-09-574-708A-4
26	82	68.3	145	4	US-09-037-983C-2
27	73.5	61.3	188	4	US-09-244-583-28

28	70	58.3	149	1	US-08-469-427A-14	Sequence 14, Appl
29	70	58.3	149	2	US-08-039-297B-2	Sequence 2, Appl
30	70	58.3	149	2	US-08-569-063C-21	Sequence 21, Appl
31	70	58.3	149	3	US-08-795-430-55	Sequence 55, Appl
32	70	58.3	149	3	US-08-586-039B-47	Sequence 47, Appl
33	70	58.3	149	4	US-09-355-700-55	Sequence 55, Appl
34	70	58.3	149	4	US-08-706-054A-5	Sequence 5, Appl
35	70	58.3	149	4	US-09-699-769-47	Sequence 47, Appl
36	70	58.3	149	4	US-09-313-299-5	Sequence 5, Appl
37	69	57.5	165	4	US-08-882-816-3	Sequence 3, Appl
38	69	57.5	165	4	US-08-802-052B-3	Sequence 3, Appl
39	69	57.5	165	6	5194596-18	Patent No. 5194596
40	69	57.5	165	6	5219739-19	Patent No. 5219739
41	69	57.5	191	3	US-08-567-200A-2	Sequence 2, Appl
42	69	57.5	191	3	US-08-807-992B-2	Sequence 2, Appl
43	69	57.5	191	3	US-08-691-794-2	Sequence 2, Appl
44	69	57.5	191	3	US-08-795-430-56	Sequence 56, Appl
45	69	57.5	191	4	US-09-392-932-3	Sequence 3, Appl

#### ALIGNMENTS

RESULT 1  
US-08-586-039B-33  
; Sequence 33, Application US/08586039B  
; Patent No. 6140073  
; GENERAL INFORMATION:  
; APPLICANT: Bayne, Marvin L.  
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR C  
; TITLE OF INVENTION: SUBUNIT  
; NUMBER OF SEQUENCES: 49  
; CORRESPONDENCE ADDRESSES:  
; ADDRESSEE: Merck & Co., Inc.  
; STREET: 126 E. Lincoln Avenue  
; CITY: Rahway  
; STATE: New Jersey  
; COUNTRY: USA  
; ZIP: 07065-0900  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Microsoft Word 6  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/586, 039B  
; FILING DATE: 16-JAN-1996  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 08/124, 259  
; FILING DATE: 20-SEP-1993  
; APPLICATION NUMBER: 07/676, 436  
; FILING DATE: 28-MAR-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Hand, J. Mark  
; REGISTRATION NUMBER: 36,545  
; REFERENCE/DOCKET NUMBER: 18361DA  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (908) 594-3905  
; TELEFAX: (908) 594-4720  
; INFORMATION FOR SEQ ID NO: 33:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 146 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; US-08-586-039B-33  
Query Match 100.0%; Score 120; DB 3; Length 146;  
Best Local Similarity 100.0%; Pred. No. 3e-09;  
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CECRPKDRTKPKCDKPRR 20  
Db 127 CECRPKDRTKPKCDKPRR 146

## RESULT 2

US-09-699-769-33  
Sequence 33, Application US/09699769

Patent No. 6569434  
GENERAL INFORMATION:

APPLICANT: Bayne, Marvin L.  
Thomas Jr., Kenneth A.

TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR  
C SUBUNIT

NUMBER OF SEQUENCES: 49  
CORRESPONDENCE ADDRESS:

ADDRESSEE: Merck & Co., Inc.  
STREET: 126 E. Lincoln Avenue

CITY: Rahway  
STATE: New Jersey

COUNTRY: USA  
ZIP: 07065-0900

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Microsoft Word 6  
CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/699,769  
FILING DATE: 30-Oct-2000

CLASSIFICATION: <Unknown>  
PRIOR APPLICATION DATA:

APPLICATION NUMBER: 08/586,039  
FILING DATE: 16-JAN-1996

APPLICATION NUMBER: 08/124,259  
FILING DATE: 20-SEP-1993

APPLICATION NUMBER: 07/676,436  
FILING DATE: 28-MAR-1991

ATTORNEY/AGENT INFORMATION:  
NAME: Hand, J. Mark

REGISTRATION NUMBER: 36,545  
REFERENCE/DOCKET NUMBER: 18361DB

TELECOMMUNICATION INFORMATION:  
TELEPHONE: (732) 594-3905

TELEFAX: (732) 594-4720  
INFORMATION FOR SEQ ID NO: 33:

SEQUENCE CHARACTERISTICS:  
LENGTH: 146 amino acids

TYPE: amino acid  
STRANDEDNESS: single

TOPOLOGY: linear  
MOLECULE TYPE: protein

SEQUENCE DESCRIPTION: SEQ ID NO: 33:  
US-09-699-769-33

Query Match 100.0%; Score 120; DB 4; Length 146;  
Best Local Similarity 100.0%; Pred. No. 3e-09;  
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CECRPKDRTKPKCDKPRR 20  
Db 127 CECRPKDRTKPKCDKPRR 146

## RESULT 3

Patent No. 5194596  
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN

C.; MITCHELL, RICHARD L.  
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL

GROWTH FACTOR  
NUMBER OF SEQUENCES: 32

CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/450,883  
FILING DATE: 14-DEC-1989  
PRIOR APPLICATION DATA: 387,545  
APPLICATION NUMBER: 387,545  
FILING DATE: 27-JUL-1989  
SEQ ID NO: 19;  
LENGTH: 121

US-09-266-543-4

Query Match 86.7%; Score 104; DB 6; Length 121;  
Best Local Similarity 85.0%; Pred. No. 3.5e-07;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPKDRTKPKCDKPRR 20  
Db 102 CECRPKDRTKPKCDKPRR 121

## RESULT 4

US-09-266-543-4

Patent No. 5219739  
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN C.; MITCHELL, RICHARD L.

TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGF120 AND  
HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN

VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGF120 AND HVEGF121  
NUMBER OF SEQUENCES: 40

CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/559,041

FILING DATE: 27-JUL-1990  
PRIOR APPLICATION DATA:

APPLICATION NUMBER: 450,883  
FILING DATE: 14-DEC-1989

APPLICATION NUMBER: 387,545  
FILING DATE: 27-JUL-1989

SEQ ID NO: 20;  
LENGTH: 121

US-09-266-543-4

Query Match 86.7%; Score 104; DB 6; Length 121;  
Best Local Similarity 85.0%; Pred. No. 3.5e-07;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPKDRTKPKCDKPRR 20  
Db 102 CECRPKDRTKPKCDKPRR 121

US-09-266-543-4

Sequence 1, Application US/088079928  
Patent No. 6022541

GENERAL INFORMATION:  
APPLICANT: Senger, Donald R

APPLICANT: Dvorak, Harold F  
TITLE OF INVENTION: Immunological preparation for concurrent

TITLE OF INVENTION: specific binding to spatially exposed regions of vascular  
permeability factor bound in-vivo to a tumor associated blood

TITLE OF INVENTION: vessel  
NUMBER OF SEQUENCES: 31

CORRESPONDENCE ADDRESS:  
ADDRESSEE: David Prashker, Esq.

STREET: P.O. Box 5387  
CITY: Magnolia

STATE: Massachusetts  
COUNTRY: USA

ZIP: 01930  
COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage  
COMPUTER: IBM PS/1

OPERATING SYSTEM: MS DOS  
SOFTWARE: WordPerfect version 5.1

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;
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/807,992B
; FILING DATE: March 3, 1997
; CLASSIFICATION: 424
; ATTORNEY/AGENT INFORMATION:
; NAME: David Prashker, Esq.
; REGISTRATION NUMBER: 29,693
; REFERENCE/DOCKET NUMBER: BIS-033
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (978) 525-3794
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 147 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
;
; US-08-807-992B-1
;
Query Match      86.7%; Score 104; DB 3; Length 147;
Best Local Similarity 85.0%; Pred. No. 4.2e-07;
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY      1 CECRPKDRTPKCDKPRR 20
DB      128 CECRPKDRARQKCDKPRR 147

RESULT 6
US-09-392-932-1
; Sequence 1, Application US/09392932
; Patent No. 6352975
; GENERAL INFORMATION:
; APPLICANT: Schreiner, George F.
; APPLICANT: Johnson, Richard J.
; TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND
; FILE REFERENCE: SCIOS.002A
; CURRENT APPLICATION NUMBER: US/09/392,932
; CURRENT FILING DATE: 1999-09-09
; EARLIER APPLICATION NUMBER: 60/099,694
; EARLIER FILING DATE: 1998-09-09
; NUMBER OF SEQ ID NOS: 11
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 1
; LENGTH: 147
; TYPE: PRT
; ORGANISM: Homo Sapiens
;
US-09-392-932-1
;
Query Match      86.7%; Score 104; DB 4; Length 147;
Best Local Similarity 85.0%; Pred. No. 4.2e-07;
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY      1 CECRPKDRTPKCDKPRR 20
DB      128 CECRPKDRARQKCDKPRR 147

RESULT 7
US-08-706-054A-4
; Sequence 4, Application US/08706054A
; Patent No. 6451764
; GENERAL INFORMATION:
; APPLICANT: Lee, James
; APPLICANT: Wood, William I.
; TITLE OF INVENTION: VEGF-Related Protein
; NUMBER OF SEQUENCES: 12
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 460 Point San Bruno Blvd
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA

```

```

;
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
;
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/706,054A
; FILING DATE: 30-Aug-1996
; CLASSIFICATION: <Unknown>
;
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 60/003491
; FILING DATE: 08-Sep-1995
; ATTORNEY/AGENT INFORMATION:
; NAME: Lee, Wendy M.
; REGISTRATION NUMBER: P-40,378
; REFERENCE/DOCKET NUMBER: P0963R1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 415/225-1994
; TELEFAX: 415/952-9881
; TELEX: 910/371-7168
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 147 amino acids
; TYPE: Amino Acid
; TOPOLOGY: linear
;
; SEQUENCE DESCRIPTION: SEQ ID NO: 4:
;
; US-08-706-054A-4
;
Query Match      86.7%; Score 104; DB 4; Length 147;
Best Local Similarity 85.0%; Pred. No. 4.2e-07;
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY      1 CECRPKDRTPKCDKPRR 20
DB      128 CECRPKDRARQKCDKPRR 147

RESULT 8
US-09-574-708A-2
; Sequence 2, Application US/09574708A
; Patent No. 6475796
; GENERAL INFORMATION:
; APPLICANT: N. Stephen Pollitt
; APPLICANT: Judith A. Abraham
; TITLE OF INVENTION: Vascular endothelial growth factor
; FILE REFERENCE: SCIOS004A
; CURRENT APPLICATION NUMBER: US/09/574,708A
; CURRENT FILING DATE: 2000-05-18
; PRIOR APPLICATION NUMBER: US 60/135,312
; PRIOR FILING DATE: 1999-05-20
; NUMBER OF SEQ ID NOS: 11
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 2
; LENGTH: 147
; TYPE: PRT
; ORGANISM: Homo sapiens
;
US-09-574-708A-2
;
Query Match      86.7%; Score 104; DB 4; Length 147;
Best Local Similarity 85.0%; Pred. No. 4.2e-07;
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY      1 CECRPKDRTPKCDKPRR 20
DB      128 CECRPKDRARQKCDKPRR 147

RESULT 9
US-09-313-299-4
; Sequence 4, Application US/09313299B
; Patent No. 6576608

```

GENERAL INFORMATION:  
APPLICANT: Lee, James  
APPLICANT: Wood, William I.  
TITLE OF INVENTION: VEGF-RELATED PROTEIN  
FILE REFERENCE: P0963R1D1  
CURRENT APPLICATION NUMBER: US/09/313,299B  
CURRENT FILING DATE: 1999-05-17  
EARLIER APPLICATION NUMBER: US 08/706,054  
EARLIER FILING DATE: 1996-08-30  
EARLIER APPLICATION NUMBER: US 60/003,491  
EARLIER FILING DATE: 1995-09-08  
NUMBER OF SEQ ID NOS: 12  
SEQ ID NO 4  
LENGTH: 147  
TYPE: PRT  
ORGANISM: Human  
FEATURE:  
NAME/KEY: Human  
LOCATION: 1-147  
OTHER INFORMATION: Sequence source: VEGF-121  
US-09-313-299-4

Query Match  
Best Local Similarity 86.7%; Score 104; DB 4; Length 147;  
Best Local Similarity 85.0%; Pred. No. 4.2e-07;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPRR 20  
|||||:|||||  
Db 128 CECRPKDKRARQEKCDKPRR 147

RESULT 10  
5194596-9  
Patent No. 5194596  
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN  
C.; MITCHELL, RICHARD L.  
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL  
GROWTH FACTOR  
NUMBER OF SEQUENCES: 32  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/450,883  
FILING DATE: 14-DEC-1989  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 387,545  
FILING DATE: 27-JUL-1989  
SEQ ID NO: 9  
LENGTH: 120  
5194596-9

Query Match  
Best Local Similarity 84.2%; Score 101; DB 6; Length 120;  
Best Local Similarity 80.0%; Pred. No. 8.7e-07;  
Matches 16; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPRR 20  
|||||:|||||  
Db 101 CECRPKDKRARQEKCDKPRR 120

RESULT 11  
5219739-9  
Patent No. 5219739  
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,  
JOHN C.; MITCHELL, RICHARD L.  
TITLE OF INVENTION: DNA SEQUENCES ENCODING VEGF120 AND  
HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN  
VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, VEGF120 AND HVEGF121  
NUMBER OF SEQUENCES: 40  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/559,041  
FILING DATE: 27-JUL-1990  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 450,883

FILING DATE: 14-DEC-1989  
APPLICATION NUMBER: 387,545  
FILING DATE: 27-JUL-1989  
SEQ ID NO: 9  
LENGTH: 120  
5219739-9

Query Match  
Best Local Similarity 84.2%; Score 101; DB 6; Length 120;  
Best Local Similarity 80.0%; Pred. No. 8.7e-07;  
Matches 16; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPRR 20  
|||||:|||||  
Db 101 CECRPKDKRARQEKCDKPRR 120

RESULT 12  
US-09-431-888-3  
Sequence 3, Application US/09/431888A  
Patent No. 6541008  
GENERAL INFORMATION:  
APPLICANT: Wise, Lynn M  
APPLICANT: Mercer, Andrew A  
APPLICANT: Savory, Loreen J  
APPLICANT: Fleming, Stephen B  
APPLICANT: Stacker, Stephen  
TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR-LIKE PROTEIN FROM ORF  
TITLE OF INVENTION: RECEPTOR-2, AND USES THEREOF  
FILE REFERENCE: Sequence Listing for 09/431,833  
Patent No. 6541008  
CURRENT FILING DATE: 1999-11-02  
EARLIER APPLICATION NUMBER: 60/106,689  
EARLIER FILING DATE: 1998-11-02  
EARLIER APPLICATION NUMBER: 60/106,800  
EARLIER FILING DATE: 1998-11-03  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 3  
LENGTH: 147  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-431-888-3

Query Match  
Best Local Similarity 82.5%; Score 99; DB 4; Length 147;  
Best Local Similarity 80.0%; Pred. No. 2e-06;  
Matches 16; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPRR 20  
|||||:|||||  
Db 128 CECRPKDKRARQEKCDKPRR 147

RESULT 13  
US-09-037-983C-15  
Sequence 15, Application US/09037983C  
Patent No. 6583276  
GENERAL INFORMATION:  
APPLICANT: Newfield, Gera  
APPLICANT: Keshet, Eli  
APPLICANT: Vlodavsky, Israel  
APPLICANT: Poltorak, Zoya  
TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Dis  
FILE REFERENCE: 000274-00009  
CURRENT APPLICATION NUMBER: US/09/037,983C  
CURRENT FILING DATE: 1998-03-11  
PRIOR APPLICATION NUMBER: 60/025,537  
PRIOR FILING DATE: 1996-09-06  
NUMBER OF SEQ ID NOS: 17  
SOFTWARE: PatentIn version 3.1  
SEQ ID NO 15  
LENGTH: 136

TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-037-983C-15

Query Match 72.1%; Score 86.5; DB 4; Length 136;  
Best Local Similarity 48.6%; Pred. No. 8.6e-05;  
Matches 17; Conservative 1; Mismatches 2; Indels 15; Gaps 1;

QY 1 CECRPFKDRTPKE-----CDKPRR 20  
Db 102 CECRPFKDRAROEKKSVRGKGKGRKRYKSWVCDKPRR 136

RESULT 14  
US-09-037-983C-17  
Sequence 17, Application US/09037983C  
Patent No. 6583276  
GENERAL INFORMATION:  
APPLICANT: Newfield, Gera  
APPLICANT: Keshet, Eli  
APPLICANT: Vlodevsky, Israel  
APPLICANT: Poltorak, Zoya  
TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease  
FILE REFERENCE: 000274-00009  
CURRENT APPLICATION NUMBER: US/09/037,983C  
CURRENT FILING DATE: 1998-03-11  
PRIOR APPLICATION NUMBER: 60/025,537  
PRIOR FILING DATE: 1996-09-06  
NUMBER OF SEQ ID NOS: 17  
SOFTWARE: PatentIn version 3.1  
SEQ ID NO 17  
LENGTH: 137  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-037-983C-17

Query Match 71.7%; Score 86; DB 4; Length 137;  
Best Local Similarity 47.2%; Pred. No. 0.0001;  
Matches 17; Conservative 1; Mismatches 2; Indels 16; Gaps 1;

QY 1 CECRPFKDRTPKE-----KCDKPRR 20  
Db 102 CECRPFKDRAROEKKSVRGKGKGRKRYKSWVCDKPRR 137

RESULT 15  
US-09-037-983C-16  
Sequence 16, Application US/09037983C  
Patent No. 6583276  
GENERAL INFORMATION:  
APPLICANT: Newfield, Gera  
APPLICANT: Keshet, Eli  
APPLICANT: Vlodevsky, Israel  
APPLICANT: Poltorak, Zoya  
TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease  
FILE REFERENCE: 000274-00009  
CURRENT APPLICATION NUMBER: US/09/037,983C  
CURRENT FILING DATE: 1998-03-11  
PRIOR APPLICATION NUMBER: 60/025,537  
PRIOR FILING DATE: 1996-09-06  
NUMBER OF SEQ ID NOS: 17  
SOFTWARE: PatentIn version 3.1  
SEQ ID NO 16  
LENGTH: 138  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-037-983C-16

Query Match 71.2%; Score 85.5; DB 4; Length 138;  
Best Local Similarity 45.3%; Pred. No. 0.00012;  
Matches 17; Conservative 1; Mismatches 2; Indels 17; Gaps 1;

QY 1 CECRPFKDRTPKE-----CDKPRR 20

Db 102 CECRPFKDRAROEKKSVRGKGKGRKRYKSWVCDKPRR 138

Search completed: January 30, 2004, 11:47:51  
Job time : 8.51282 secs



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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:44:49 ; Search time 19.7949 Seconds  
(without alignments)  
209.978 Million cell updates/sec

Title: US-09-266-543-4  
120  
Perfect score: 1 CECRPKDRTKPKCDKPRR 20  
Sequence:

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 789580 seqs, 207824079 residues

Total number of hits satisfying chosen parameters: 789580

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Published Applications\_AA:\*

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3: /cgn2\_6/ptodata/2/pubpaa/US06\_NEW\_PUB.pep:\*  
4: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep:\*  
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9: /cgn2\_6/ptodata/2/pubpaa/US09\_PUBCOMB.pep:\*  
10: /cgn2\_6/ptodata/2/pubpaa/US09\_PUBCOMB.pep:\*  
11: /cgn2\_6/ptodata/2/pubpaa/US09C\_PUBCOMB.pep:\*  
12: /cgn2\_6/ptodata/2/pubpaa/US09C\_NEW\_PUB.pep:\*  
13: /cgn2\_6/ptodata/2/pubpaa/US10\_PUBCOMB.pep:\*  
14: /cgn2\_6/ptodata/2/pubpaa/US10C\_PUBCOMB.pep:\*  
15: /cgn2\_6/ptodata/2/pubpaa/US10C\_PUBCOMB.pep:\*  
16: /cgn2\_6/ptodata/2/pubpaa/US10\_NEW\_PUB.pep:\*  
17: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep:\*  
18: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

## SUMMARIES

Result	No.	Score	Query Match	Length	ID	Description
1	104	86.7	105	9	US-09-925-299-927	Sequence 927, App
2	104	86.7	105	11	US-09-925-299-927	Sequence 927, App
3	104	86.7	121	11	US-09-832-355A-1	Sequence 1, Appli
4	104	86.7	147	12	US-10-346-802-4	Sequence 4, Appli
5	104	86.7	147	12	US-10-392-931-2	Sequence 2, Appli
6	104	86.7	147	12	US-10-418-529-2	Sequence 2, Appli
7	104	86.7	147	14	US-10-083-817-1	Sequence 1, Appli
8	104	86.7	147	15	US-10-268-447-2	Sequence 1, Appli
9	104	86.7	212	11	US-09-832-355A-84	Sequence 84, Appli
10	104	86.7	222	11	US-09-832-355A-79	Sequence 79, Appli
11	104	86.7	339	11	US-09-832-355A-97	Sequence 97, Appli
12	104	86.7	367	11	US-09-832-355A-94	Sequence 94, Appli
13	104	86.7	367	11	US-09-832-355A-104	Sequence 104, Appli
14	104	86.7	368	11	US-09-832-355A-74	Sequence 74, Appli
15	104	86.7	371	11	US-09-832-355A-89	Sequence 89, Appli

16	104	86.7	371	11	US-09-832-355A-103	Sequence 103, App
17	104	86.7	462	12	US-09-832-355A-100	Sequence 100, App
18	104	86.7	630	12	US-10-053-637-24	Sequence 24, App
19	104	86.7	648	11	US-09-832-355A-126	Sequence 126, App
20	104	86.7	650	12	US-10-053-637-28	Sequence 28, Appli
21	99	82.5	353	15	US-10-196-793A-57	Sequence 57, Appli
22	92.5	77.1	150	11	US-09-832-355A-61	Sequence 61, Appli
23	90.5	75.4	154	11	US-09-832-355A-59	Sequence 59, Appli
24	90.5	75.4	154	11	US-09-832-355A-62	Sequence 62, Appli
25	86.5	72.1	162	11	US-09-832-355A-60	Sequence 60, Appli
26	85.5	71.2	164	12	US-10-293-157-24	Sequence 24, Appli
27	85	70.8	190	12	US-09-921-143-7	Sequence 7, Appli
28	85	70.8	190	15	US-10-071-370A-2	Sequence 2, Appli
29	83	69.2	214	9	US-09-349-954A-22	Sequence 22, Appli
30	83	69.2	214	10	US-09-907-007-22	Sequence 22, Appli
31	82	68.3	145	12	US-10-319-828-2	Sequence 2, Appli
32	82	68.3	145	12	US-10-392-931-4	Sequence 4, Appli
33	82	68.3	145	12	US-10-418-529-4	Sequence 4, Appli
34	82	68.3	145	14	US-10-083-817-2	Sequence 2, Appli
35	82	68.3	145	15	US-10-268-447-4	Sequence 4, Appli
36	82	68.3	171	9	US-09-812-133-2	Sequence 2, Appli
37	73.5	61.3	188	12	US-10-293-157-28	Sequence 28, Appli
38	70	58.3	149	10	US-09-795-006A-115	Sequence 115, App
39	70	58.3	149	12	US-10-021-660-102	Sequence 102, App
40	70	58.3	149	12	US-10-346-802-5	Sequence 5, Appli
41	70	58.3	149	12	US-10-116-275-226	Sequence 226, App
42	70	58.3	149	15	US-10-201-386-55	Sequence 55, Appli
43	70	58.3	149	15	US-10-262-538-28	Sequence 28, Appli
44	69	57.5	12	15	US-10-156-932-73	Sequence 73, Appli
45	69	57.5	13	15	US-10-156-932-81	Sequence 81, Appli

## ALIGNMENTS

RESULT 1  
US-09-925-299-927  
; Sequence 927, Application US/09925299  
; Patent No. US20020055627A1  
; GENERAL INFORMATION:  
; APPLICANT: Rosen et al.  
; TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies  
; FILE REFERENCE: PA102  
; CURRENT APPLICATION NUMBER: US/09/925,299  
; CURRENT FILING DATE: 2001-08-10  
; PRIOR APPLICATION NUMBER: 2001-08-10  
; PRIOR FILING DATE: 2000-03-08  
; PRIOR APPLICATION NUMBER: PCT/US00/05883  
; PRIOR FILING DATE: 1999-03-12  
; NUMBER OF SEQ ID NOS: 1556  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 927  
; LENGTH: 105  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-09-925-299-927

Query Match 86.7%; Score 104; DB 9; Length 105;  
Best Local Similarity 85.0%; Pred. No. 1.4e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

CY 1 CECRPKDRTKPKCDKPRR 20  
DB 86 CECRPKDRTKPKCDKPRR 105

RESULT 2  
US-09-925-299-927  
; Sequence 927, Application US/09925299  
; Publication No. US20030040617A9  
; GENERAL INFORMATION:  
; APPLICANT: Rosen et al.  
; TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies

FILE REFERENCE: PA102  
CURRENT APPLICATION NUMBER: US/09/925,299  
CURRENT FILING DATE: 2001-08-10  
PRIOR APPLICATION NUMBER: PCT/US00/05883  
PRIOR FILING DATE: 2000-03-08  
PRIOR APPLICATION NUMBER: 60/124,270  
PRIOR FILING DATE: 1999-03-12  
NUMBER OF SEQ ID NOS: 1556  
SOFTWARE: Patent In Ver. 2.0  
SEQ ID NO 927  
LENGTH: 105  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-925-299-927

Query Match 86.7%; Score 104; DB 11; Length 105;  
Best Local Similarity 85.0%; Pred. No. 1.4e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPKDRTKPEKCDKPRR 20  
Db 86 CECRPKDARARQEKCDKPRR 105

RESULT 3  
US-09-832-355A-1  
Sequence 1, Application US/09832355A  
Publication No. US20030027751A1  
GENERAL INFORMATION:  
APPLICANT: Kovesdi, Imre  
APPLICANT: Kessler, Paul  
TITLE OF INVENTION: VEGF FUSION PROTEINS  
FILE REFERENCE: 205654  
CURRENT APPLICATION NUMBER: US/09/832,355A  
CURRENT FILING DATE: 2001-04-10  
NUMBER OF SEQ ID NOS: 126  
SOFTWARE: Patent In version 3.0  
SEQ ID NO 1  
LENGTH: 121  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-832-355A-1

Query Match 86.7%; Score 104; DB 11; Length 121;  
Best Local Similarity 85.0%; Pred. No. 1.6e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPKDRTKPEKCDKPRR 20  
Db 102 CECRPKDARARQEKCDKPRR 121

RESULT 4  
US-10-346-802-4  
Sequence 4, Application US/10346802  
Publication No. US20030166873A1  
GENERAL INFORMATION:  
APPLICANT: Lee, James  
APPLICANT: Wood, William I.  
TITLE OF INVENTION: VEGF-RELATED PROTEIN  
FILE REFERENCE: P0963R1D1  
CURRENT APPLICATION NUMBER: US/10/346,802  
CURRENT FILING DATE: 2003-01-17  
PRIOR APPLICATION NUMBER: US/09/313,299B  
PRIOR FILING DATE: 1999-05-17  
PRIOR APPLICATION NUMBER: US 08/706,054  
PRIOR FILING DATE: EARLIER FILING DATE: 1996-08-30  
PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: 60/003,491  
PRIOR FILING DATE: EARLIER FILING DATE: 1995-09-08  
NUMBER OF SEQ ID NOS: 12  
SEQ ID NO 4  
LENGTH: 147  
TYPE: PRT

ORGANISM: Human  
FEATURE:  
NAME/KEY: Human  
LOCATION: 1-147  
OTHER INFORMATION: Sequence source: VEGF-121  
US-10-346-802-4

Query Match 86.7%; Score 104; DB 12; Length 147;  
Best Local Similarity 85.0%; Pred. No. 2e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPKDRTKPEKCDKPRR 20  
Db 128 CECRPKDARARQEKCDKPRR 147

RESULT 5  
US-10-392-931-2  
Sequence 2, Application US/10392931  
Publication No. US20030194643A1  
GENERAL INFORMATION:  
APPLICANT: Schreiner, George F.  
APPLICANT: Johnson, Richard J.  
APPLICANT: Scios, Inc.  
TITLE OF INVENTION: TREATMENT OF MICROVASCULAR ANGIOPATHIES  
FILE REFERENCE: SCIOS 003A  
CURRENT APPLICATION NUMBER: US/10/392,931  
CURRENT FILING DATE: 1999-09-09  
PRIOR APPLICATION NUMBER: 60/099694  
PRIOR FILING DATE: 1998-09-09  
PRIOR APPLICATION NUMBER: 60/126406  
PRIOR FILING DATE: 1999-03-26  
PRIOR APPLICATION NUMBER: 60/126615  
PRIOR FILING DATE: 1999-03-27  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 2  
LENGTH: 147  
TYPE: PRT  
ORGANISM: Homo sapien  
US-10-392-931-2

Query Match 86.7%; Score 104; DB 12; Length 147;  
Best Local Similarity 85.0%; Pred. No. 2e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPKDRTKPEKCDKPRR 20  
Db 128 CECRPKDARARQEKCDKPRR 147

RESULT 6  
US-10-418-529-2  
Sequence 2, Application US/10418529  
Publication No. US20030220262A1  
GENERAL INFORMATION:  
APPLICANT: Schreiner, George F.  
APPLICANT: Johnson, Richard J.  
APPLICANT: Scios, Inc.  
TITLE OF INVENTION: TREATMENT OF ECLAMPSIA AND PRE-ECLAMPSIA  
FILE REFERENCE: SCIOS 003C1  
CURRENT APPLICATION NUMBER: US/10/418,529  
CURRENT FILING DATE: 2003-04-16  
PRIOR APPLICATION NUMBER: 60/099694  
PRIOR FILING DATE: 1998-09-09  
PRIOR APPLICATION NUMBER: 60/126406  
PRIOR FILING DATE: 1999-03-26  
PRIOR APPLICATION NUMBER: 60/126615  
PRIOR FILING DATE: 1999-03-27  
PRIOR APPLICATION NUMBER: 09/392931  
PRIOR FILING DATE: 1999-09-09



NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 2  
LENGTH: 147  
TYPE: PRT  
ORGANISM: Homo sapien  
US-10-418-529-2

Query Match 86.7%; Score 104; DB 12; Length 147;  
Best Local Similarity 85.0%; Pred. No. 2e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPEKCDKPRR 20  
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DB 128 CECRPKQRTKPEKCDKPRR 147

RESULT 7  
US-10-083-817-1  
Sequence 1, Application US/10083817  
Publication No. US20020193288A1  
GENERAL INFORMATION:  
APPLICANT: Schreiner, George F.  
APPLICANT: Johnson, Richard J.  
TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND  
FILE REFERENCE: SCIOS.002CI  
CURRENT APPLICATION NUMBER: US/10/083,817  
CURRENT FILING DATE: 2002-02-26  
PRIOR APPLICATION NUMBER: 60/099,694  
PRIOR FILING DATE: 1998-09-09  
PRIOR APPLICATION NUMBER: 09/392,932  
PRIOR FILING DATE: 1999-09-09  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 1  
LENGTH: 147  
TYPE: PRT  
ORGANISM: Homo Sapien  
US-10-083-817-1

Query Match 86.7%; Score 104; DB 14; Length 147;  
Best Local Similarity 85.0%; Pred. No. 2e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPEKCDKPRR 20  
|||||:|||||  
DB 128 CECRPKQRTKPEKCDKPRR 147

RESULT 8  
US-10-268-447-2  
Sequence 2, Application US/10268447  
Publication No. US20030096754A1  
GENERAL INFORMATION:  
APPLICANT: N. Stephen Pollitt  
APPLICANT: Judith A. Abraham  
TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR  
FILE REFERENCE: SCIOS.004DV1  
CURRENT APPLICATION NUMBER: US/10/268,447  
CURRENT FILING DATE: 2002-10-10  
PRIOR APPLICATION NUMBER: 60/135,312  
PRIOR FILING DATE: 1999-05-20  
PRIOR APPLICATION NUMBER: 09/574,708  
PRIOR FILING DATE: 2000-05-18  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 2  
LENGTH: 147  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-10-268-447-2

Query Match 86.7%; Score 104; DB 15; Length 147;  
Best Local Similarity 85.0%; Pred. No. 2e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPEKCDKPRR 20  
|||||:|||||  
DB 128 CECRPKQRTKPEKCDKPRR 147

RESULT 9  
US-09-832-355A-84  
Sequence 84, Application US/09832355A  
Publication No. US20030027751A1  
GENERAL INFORMATION:  
APPLICANT: Kovesdi, Imre  
APPLICANT: Kessler, Paul  
TITLE OF INVENTION: VEGF FUSION PROTEINS  
FILE REFERENCE: 205654  
CURRENT APPLICATION NUMBER: US/09/832,355A  
CURRENT FILING DATE: 2001-04-10  
NUMBER OF SEQ ID NOS: 126  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 84  
LENGTH: 212  
TYPE: PRT  
ORGANISM: Artificial sequence  
FEATURE:  
NAME/KEY: misc.feature  
LOCATION: ().T)  
OTHER INFORMATION: Synthetic  
US-09-832-355A-84

Query Match 86.7%; Score 104; DB 11; Length 212;  
Best Local Similarity 85.0%; Pred. No. 2.8e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPEKCDKPRR 20  
|||||:|||||  
DB 128 CECRPKQRTKPEKCDKPRR 147

RESULT 10  
US-09-832-355A-79  
Sequence 79, Application US/09832355A  
Publication No. US20030027751A1  
GENERAL INFORMATION:  
APPLICANT: Kovesdi, Imre  
APPLICANT: Kessler, Paul  
TITLE OF INVENTION: VEGF FUSION PROTEINS  
FILE REFERENCE: 205654  
CURRENT APPLICATION NUMBER: US/09/832,355A  
CURRENT FILING DATE: 2001-04-10  
NUMBER OF SEQ ID NOS: 126  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 79  
LENGTH: 222  
TYPE: PRT  
ORGANISM: Artificial sequence  
FEATURE:  
NAME/KEY: misc.feature  
LOCATION: ().T)  
OTHER INFORMATION: Synthetic  
US-09-832-355A-79

Query Match 86.7%; Score 104; DB 11; Length 222;  
Best Local Similarity 85.0%; Pred. No. 2.9e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKQRTKPEKCDKPRR 20  
|||||:|||||  
DB 128 CECRPKQRTKPEKCDKPRR 147

RESULT 11  
US-09-832-355A-97  
; Sequence 97, Application US/09832355A  
; Publication No. US20030027751A1  
; GENERAL INFORMATION:  
; APPLICANT: Kovesdi, Imre  
; TITLE OF INVENTION: VEGF FUSION PROTEINS  
; FILE REFERENCE: 205654  
; CURRENT APPLICATION NUMBER: US/09/832,355A  
; CURRENT FILING DATE: 2001-04-10  
; NUMBER OF SEQ ID NOS: 126  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO: 97  
; LENGTH: 339  
; TYPE: PRT  
; ORGANISM: Artificial sequence  
; FEATURE:  
; NAME/KEY: misc.feature  
; LOCATION: (1..7)  
; OTHER INFORMATION: Synthetic  
US-09-832-355A-97

Query Match 86.7%; Score 104; DB 11; Length 339;  
Best Local Similarity 85.0%; Pred. No. 4.4e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPKDKRTPEKCDKPRR 20  
|||:|||||  
Db 128 CECRPKDKRARQEKCDKPRR 147

RESULT 12  
US-09-832-355A-94  
; Sequence 94, Application US/09832355A  
; Publication No. US20030027751A1  
; GENERAL INFORMATION:  
; APPLICANT: Kovesdi, Imre  
; APPLICANT: Kessler, Paul  
; TITLE OF INVENTION: VEGF FUSION PROTEINS  
; FILE REFERENCE: 205654  
; CURRENT APPLICATION NUMBER: US/09/832,355A  
; CURRENT FILING DATE: 2001-04-10  
; NUMBER OF SEQ ID NOS: 126  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO: 94  
; LENGTH: 367  
; TYPE: PRT  
; ORGANISM: Artificial sequence  
; FEATURE:  
; NAME/KEY: misc.feature  
; LOCATION: (1..7)  
; OTHER INFORMATION: Synthetic  
US-09-832-355A-94

Query Match 86.7%; Score 104; DB 11; Length 367;  
Best Local Similarity 85.0%; Pred. No. 4.8e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPKDKRTPEKCDKPRR 20  
|||:|||||  
Db 128 CECRPKDKRARQEKCDKPRR 147

RESULT 13  
US-09-832-355A-104  
; Sequence 104, Application US/09832355A  
; Publication No. US20030027751A1  
; GENERAL INFORMATION:  
; APPLICANT: Kovesdi, Imre  
; APPLICANT: Kessler, Paul  
; TITLE OF INVENTION: VEGF FUSION PROTEINS

; FILE REFERENCE: 205654  
; CURRENT APPLICATION NUMBER: US/09/832,355A  
; CURRENT FILING DATE: 2001-04-10  
; NUMBER OF SEQ ID NOS: 126  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO: 104  
; LENGTH: 367  
; TYPE: PRT  
; ORGANISM: Artificial sequence  
; FEATURE:  
; NAME/KEY: misc.feature  
; LOCATION: (1..7)  
; OTHER INFORMATION: Synthetic  
US-09-832-355A-104

Query Match 86.7%; Score 104; DB 11; Length 367;  
Best Local Similarity 85.0%; Pred. No. 4.8e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPKDKRTPEKCDKPRR 20  
|||:|||||  
Db 128 CECRPKDKRARQEKCDKPRR 147

RESULT 14  
US-09-832-355A-74  
; Sequence 74, Application US/09832355A  
; Publication No. US20030027751A1  
; GENERAL INFORMATION:  
; APPLICANT: Kovesdi, Imre  
; APPLICANT: Kessler, Paul  
; TITLE OF INVENTION: VEGF FUSION PROTEINS  
; FILE REFERENCE: 205654  
; CURRENT APPLICATION NUMBER: US/09/832,355A  
; CURRENT FILING DATE: 2001-04-10  
; NUMBER OF SEQ ID NOS: 126  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO: 74  
; LENGTH: 368  
; TYPE: PRT  
; ORGANISM: Artificial sequence  
; FEATURE:  
; NAME/KEY: misc.feature  
; LOCATION: (1..7)  
; OTHER INFORMATION: Synthetic  
US-09-832-355A-74

Query Match 86.7%; Score 104; DB 11; Length 368;  
Best Local Similarity 85.0%; Pred. No. 4.8e-06;  
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPKDKRTPEKCDKPRR 20  
|||:|||||  
Db 128 CECRPKDKRARQEKCDKPRR 147

RESULT 15  
US-09-832-355A-89  
; Sequence 89, Application US/09832355A  
; Publication No. US20030027751A1  
; GENERAL INFORMATION:  
; APPLICANT: Kovesdi, Imre  
; APPLICANT: Kessler, Paul  
; TITLE OF INVENTION: VEGF FUSION PROTEINS  
; FILE REFERENCE: 205654  
; CURRENT APPLICATION NUMBER: US/09/832,355A  
; CURRENT FILING DATE: 2001-04-10  
; NUMBER OF SEQ ID NOS: 126  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO: 89  
; LENGTH: 371  
; TYPE: PRT  
; ORGANISM: Artificial sequence

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; FEATURE:
; NAME/KEY: misc feature
; LOCATION: (.)
; OTHER INFORMATION: Synthetic
US-09-832-355A-89

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Query Match      86.7%; Score 104; DB 11; Length 371;
Best Local Similarity 85.0%; Pred. No. 4.9e-06;
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

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Qy      1 CECRPKDRTPKPKCDKPRR 20
         |||||:|||||
Db      128 CECRPKDRARQKCDKPRR 147

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Search completed: January 30, 2004, 12:15:01
Job time : 19.9199 secs

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GenCore version 5.1.6  
Copyright (c) 1993 - 2004 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: January 30, 2004, 11:34:23 ; Search time 8.61539 Seconds  
(without alignments)  
223.249 Million cell updates/sec

Title: US-09-266-543-4

Perfect score: 120

Sequence: 1 CECRPKDKRTKPEKCDKPRR 20

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283308 seqs, 96168682 residues

Total number of hits satisfying chosen parameters: 283308

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%

Listing first 45 summaries

Database :  
1: p1r1:\*  
2: p1r2:\*  
3: p1r3:\*  
4: p1r4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	101	84.2	120	2 A33787	vascular endothel
2	101	84.2	146	2 S57956	ovine vascular end
3	85	70.8	190	2 B44881	vascular endothel
4	85	70.8	190	2 A35987	glioma-derived vas
5	83	69.2	214	2 A44881	vascular endothel
6	70	58.3	149	2 A41236	placental growth f
7	69	57.5	190	2 S52130	vascular endothel
8	67	55.8	232	2 A41551	vascular endothel
9	66	55.0	190	2 B40080	vascular endothel
10	57	47.5	128	2 XUBYSO	dihydroliopamide S
11	55.5	46.2	152	2 S1295	vascular endothel
12	55	45.8	1786	1 MMHUB1	laminin beta-1 cha
13	55	45.8	1786	1 MMMSB1	laminin beta-1 cha
14	52.5	43.8	188	2 UC4680	vascular endothel
15	51	42.5	133	2 B49530	vascular endothel
16	51	42.5	207	2 UC4679	vascular endothel
17	50	41.7	293	2 T09028	hypothetical prote
18	49.5	41.2	160	2 T00542	185k secretory pro
19	49.5	41.2	1520	2 T27283	hypothetical prote
20	49.5	41.2	1700	2 S08167	Balbiant ring 3 pr
21	49	40.8	206	2 G97268	uracil-DNA glycosy
22	49	40.8	271	2 T08009	hypothetical prote
23	48	40.0	158	2 A56125	probable ribosomal
24	47	39.2	114	2 C29960	placental growth f
25	47	39.2	1038	2 T13177	Balbiant ring 2 ch
26	47	39.2	1038	2 T13177	sog protein - frui
27	47	39.2	2616	2 A57096	nudel protein prec
28	47	39.2	3951	1 VFTHB1	fl protein - avian
29	45.5	37.9	248	1 JH0612	amphiregulin precu

30	45.5	37.9	581	2 B54665	netrin-2 precursor
31	45.5	37.9	606	2 A54665	netrin-1 precursor
32	45	37.5	249	2 T24604	hypothetical prote
33	45	37.5	261	2 JN0747	histone H1-I - Vol
34	45	37.5	376	2 S71558	probable cell wall
35	45	37.5	465	2 S56203	regulatory protein
36	45	37.5	607	1 S52629	catechol oxidase (
37	45	37.5	2823	2 T23064	hypothetical prote
38	45	37.5	2823	2 F87908	protein T22A3.8 (1
39	45	37.5	3102	2 T43291	laminin alpha cha
40	44.5	37.1	392	2 T19327	hypothetical prote
41	44.5	37.1	397	2 D96580	hypothetical prote
42	44.5	37.1	460	2 T33596	hypothetical prote
43	44	36.7	79	2 S01718	Balbiant ring prot
44	44	36.7	95	2 S01717	Balbiant ring prot
45	44	36.7	99	2 A55819	nonhistone chromos

## ALIGNMENTS

## RESULT 1

A33787 vascular endothelial growth factor (version 1) - bovine

C:Species: Bos primigenius taurus (cattle)

C>Date: 16-Mar-1990 #sequence\_revision 16-Mar-1990 #text\_change 05-Nov-1999

C:Accession: A33787

R:Riescher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Crist

Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989.

A>Title: Vascular endothelial growth factor: a new member of the platelet-derived growth

A:Reference number: A33787; MUID:90121225; PMID:2610687

A:Accession: A33787

A>Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-120 <TIS>

A:Cross-references: GB:M33750; NID:G163810; PIDN:AAA30805.1; PID:G163811

C:Keywords: alternative splicing

## Query Match

Best Local Similarity 84.2%; Score 101; DB 2; Length 120;

Matches 16; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPKDKRTKPEKCDKPRR 20

Db 101 CECRPKDKARDEKCDKPRR 120

## RESULT 2

S57956 ovine vascular endothelial growth factor - sheep

C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)

C>Date: 13-Jan-1996 #sequence\_revision 01-Mar-1996 #text\_change 05-Nov-1999

R:Redmer, D.A.; Dai, Y.; Li, J.; Jones, S.C.; Moor, R.M.

C:Accession: S57956

A:Reference number: S57956

A:Accession: S57956

A:Molecule type: mRNA

A>Status: preliminary

A:Residues: 1-146 <RED>

A:Cross-references: EMBL:X89506; NID:G899350; PIDN:CAA61677.1; PID:G899351

## Query Match

Best Local Similarity 84.2%; Score 101; DB 2; Length 146;

Matches 16; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPKDKRTKPEKCDKPRR 20

Db 127 CECRPKDKARDEKCDKPRR 146

## RESULT 3

B44881

```

vascular endothelial growth factor-1 precursor - mouse
C:Species: Mus musculus (house mouse)
C>Date: 03-Feb-1994 #sequence_revision 03-Feb-1994 #text_change 05-Nov-1999
C:Accession: B44881; A43351; A61029
R:Breiter, G.; Albrecht, U.; Sterrer, S.; Risau, W.
Development 114, 521-532, 1992
A>Title: Expression of vascular endothelial growth factor during embryonic angiogenesis
A:Reference number: A44881; MUID:92274860; PMID:1592003
A:Accession: B44881
A:Molecule type: mRNA
A:Residues: 1-190 <BR>
A:Cross-references: GB:S38083; NID:9249858; PIDN:AA82253.1; PID:9249859
A:Experimental source: embryo
A>Note: sequence extracted from NCBI backbone (NCBIN:107622, NCBI:107623)
R:Clafey, K.P.; Wilkison, W.O.; Spiegelman, B.M.
J. Biol. Chem. 267, 16317-16322, 1992
A>Title: Vascular endothelial growth factor. Regulation by cell differentiation and acti
A:Reference number: A43351; MUID:92355593; PMID:1644816
A:Accession: A43351
A:Molecule type: mRNA
A:Residues: 1-116, BR, 119-190 <CLA>
A:Cross-references: GB:M95200; NID:9202350; PIDN:AAA0547.1; PID:9202351
A>Note: sequence extracted from NCBI backbone (NCBIN:110665, NCBI:110675)
R:Rosenthal, R.A.; Megyesi, J.F.; Henzel, W.J.; Ferrara, N.; Polkman, J.
Growth Factors 4, 53-59, 1990
A>Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelial g
A:Reference number: A61029; MUID:91197543; PMID:2085441
A:Accession: A61029
A:Molecule type: protein
A:Residues: 27-38 <ROS>
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein; mlt

Query Match
Best Local Similarity 70.8%; Score 85; DB 2; Length 190;
Matches 19; Conservative 1; Mismatches 0; Indels 44; Gaps 1;

QY 1 CECRPKDKRTKPE-----KCD 16
DB 127 CECRPKDKRTKENHCEPESERKHLFVQDPQCKSCKNMTDSRCKARQLEINERTCRD 186
QY 17 KPRR 20
DB 187 KPRR 190

RESULT 4
A35987
glioma-derived vascular endothelial cell growth factor - rat
C:Species: Rattus norvegicus (Norway rat)
C>Date: 16-Nov-1990 #sequence_revision 16-Nov-1990 #text_change 05-Nov-1999
C:Accession: A35987
R:Comm, G.; Bayne, M.L.; Soderman, D.D.; Krok, P.W.; Sullivan, K.A.; Palisi, T.M.; Hope,
Proc. Natl. Acad. Sci. U.S.A. 87, 2628-2632, 1990
A>Title: Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is ho
A:Reference number: A35987; MUID:90207249; PMID:2320579
A:Accession: A35987
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <CON>
A:Cross-references: GB:M32167; NID:9204287; PIDN:AAA41211.1; PID:9204288

Query Match
Best Local Similarity 70.8%; Score 85; DB 2; Length 190;
Matches 19; Conservative 1; Mismatches 0; Indels 44; Gaps 1;

QY 1 CECRPKDKRTKPE-----KCD 16
DB 127 CECRPKDKRTKENHCEPESERKHLFVQDPQCKSCKNMTDSRCKARQLEINERTCRD 186
QY 17 KPRR 20
DB 187 KPRR 190

```

```

RESULT 5
A44881
vascular endothelial growth factor-3 precursor - mouse
C:Species: Mus musculus (house mouse)
C>Date: 03-Feb-1994 #sequence_revision 03-Feb-1994 #text_change 08-Oct-1999
C:Accession: A44881; A60932; S52136
R:Breiter, G.; Albrecht, U.; Sterrer, S.; Risau, W.
Development 114, 521-532, 1992
A>Title: Expression of vascular endothelial growth factor during embryonic angiogenesis
A:Reference number: A44881; MUID:92274860; PMID:1592003
A:Accession: A44881
A:Molecule type: mRNA
A:Residues: 1-214 <BR>
A:Cross-references: GB:S37052; NID:9249856; PIDN:AA82252.1; PID:9249857
A:Experimental source: embryo
A>Note: sequence extracted from NCBI backbone (NCBIN:104677, NCBI:104678)
A:Accession: C44881
A:Molecule type: mRNA
A:Residues: 1-140, 209-214 <BR2>
A:Cross-references: GB:S38100; NID:9249860; PIDN:AA82254.1; PID:9249861
A>Note: sequence extracted from NCBI backbone (NCBIN:107624, NCBI:107625)
R:Clausen, M.; Gerlach, M.; Gerlach, H.; Breite, J.; Wang, F.; Familletti, P.C.; Pan, Y.C.
J. Exp. Med. 172, 1535-1545, 1990
A>Title: Vascular permeability factor: a tumor-derived polypeptide that induces endothel
A:Reference number: A60932; MUID:91079755; PMID:2258694
A:Accession: A60932
A:Molecule type: protein
A:Residues: 27-33 <CLA>
R:Sugihara, T.; Kaul, S.C.; Mitsu, Y.; Wadhwa, R.
Biochem. Biophys. Acta 1224, 365-370, 1994
A>Title: Enhanced expression of multiple forms of VEGF is associated with spontaneous im
A:Reference number: S52136; MUID:95101726; PMID:7803491
A:Accession: S52136
A:Status: preliminary
A:Molecule type: protein
A:Residues: 27-46 <SUG>
C:Comment: Homodimers could be demonstrated for recombinant VEGF-2 but not VEGF-3.
C:Keywords: alternative splicing; angiogenesis; disulfide bond; glycoprotein; homodimer;
F/27-214/Product: vascular endothelial growth factor-3 #status experimental <MAT>

Query Match
Best Local Similarity 69.2%; Score 83; DB 2; Length 214;
Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEK 14
DB 127 CECRPKDKRTKPEK 140

RESULT 6
A41236
placental growth factor precursor - human
C:Species: Homo sapiens (man)
C>Date: 19-Jun-1992 #sequence_revision 19-Jun-1992 #text_change 05-Nov-1999
C:Accession: A41236
R:Maglione, D.; Gueriero, V.; Viglietto, G.; Dell'I-Bovi, P.; Persico, M.G.
Proc. Natl. Acad. Sci. U.S.A. 88, 9267-9271, 1991
A>Title: Isolation of a human placenta cDNA coding for a protein related to the vascular
A:Reference number: A41236; MUID:92021031; PMID:1924389
A:Accession: A41236
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-149 <MAG>
A:Cross-references: GB:X54936; NID:935521; PIDN:CAA38698.1; PID:935522
A:Genetics:
A:Gene: GDB:PGF
A:Cross-references: GDB:134676; OMIM:601121
A:Map position: 14q24-14q31

Query Match
Best Local Similarity 58.3%; Score 70; DB 2; Length 149;

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Science 246, 1306-1309, 1989

A>Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.  
 A.Reference number: A40080; MUID:90069608; PMID:2479986  
 A.Accession: B40080  
 A.Molecule type: mRNA  
 A.Residues: 1-190 <LEU>  
 A.Cross-references: GB:M32976; NID:9163006; PIDN:AAA30502.1; PID:9163007  
 R.Tischer, B.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Crist  
 Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989  
 A>Title: Vascular endothelial growth factor: a new member of the platelet-derived growth  
 A.Reference number: A33787; MUID:90121225; PMID:2610687  
 A.Accession: B33787  
 A.Molecule type: mRNA  
 A.Residues: 27-190 <TIS>  
 A.Cross-references: GB:M31836; NID:9163808; PIDN:AAA30804.1; PID:9163809  
 R.Ferrara, N.; Hensel, W.J.  
 Biochem. Biophys. Res. Commun. 161, 851-858, 1989  
 A>Title: Pituitary follicular cells secrete a novel heparin-binding growth factor specific  
 A.Reference number: A33255; MUID:89286596; PMID:2735925  
 A.Accession: A33255  
 A.Molecule type: protein  
 A.Residues: 27-31 <PER>  
 C.Keywords: alternative splicing; glycoprotein  
 F.1-26/Domain: signal sequence #status predicted <SIG>  
 F.127-190/Product: vascular endothelial growth factor #status predicted <MAT>  
 F.100/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 55.0%; Score 66; DB 2; Length 190;  
 Best Local Similarity 23.4%; Pred. No. 0.09;  
 Matches 15; Conservative 3; Mismatches 2; Indels 44; Gaps 1;

Qy 1 CECRPKDKRTKPE-----KCD 16  
 Db 127 CECRPKDKARBNCGPCSEKRLIFVDPOTCKSCNMTSRCKARQLBENRTCKD 186

Qy 17 KPRR 20  
 Db 187 KPRR 190

RESULT 10  
 XUBSD  
 dihydrolipoamide S-succinyltransferase (EC 2.3.1.61) precursor - yeast (Saccharomyces cerevisiae)  
 N.Alternate names: alpha-ketoglutarate dehydrogenase complex chain K22; dihydrolipoyl E  
 C.Species: Saccharomyces cerevisiae  
 C.Date: 30-Sep-1991 #sequence revision 12-Apr-1996 #text\_change 05-May-2000  
 C.Accession: S57975; A35654; S78755; S11195  
 R.Murphy, L.; Richard, C.; Harris, D.  
 submitted to the EMBL Data Library, July 1995  
 A.Reference number: S57971  
 A.Accession: S57975  
 A.Molecule type: DNA  
 A.Residues: 1-463 <MUR>  
 A.Cross-references: EMBL:Z50046; NID:9899393; PIDN:CAA90371.1; PID:9899398; GSPDB:GN0000  
 A.Experimental source: strain AB972  
 R.Repetto, B.; Tzagoloff, A.  
 Mol. Cell. Biol. 10, 4221-4232, 1990  
 A>Title: Structure and regulation of KSD2, the structural gene for yeast dihydrolipoyl E  
 A.Reference number: A35654; MUID:90318388; PMID:2115121  
 A.Accession: A35654  
 A.Molecule type: DNA  
 A.Residues: 1-169; 'HRRKSPQKTVKRLOR', 188, 'KLOR', 194, 'KPLOR', 200, 'KLONO', 206, 'RT', 209-  
 A.Cross-references: EMBL:M34531; NID:9171782; PIDN:AAA34720.1; PID:9171783  
 R.Ruecknagel, K.P.; Rospert, S.  
 submitted to the Protein Sequence Database, March 1999  
 A.Reference number: S78754  
 A.Accession: S78755  
 A.Molecule type: protein  
 A.Residues: 72-83 <RUE>  
 C.Genetics:  
 A.Gene: SGD:KGD2; MIPS:YDR148C  
 A.Cross-references: SGD:S0002555; MIPS:YDR148C  
 A.Map position: 4R  
 A.Genome: nuclear

C.Superfamily: dihydrolipoamide acetyltransferase; lipoyl/biotin-binding homology  
 C.Keywords: acetyl-CoA; acyltransferase; coenzyme A; liponamide; mitochondrion; tricarbox  
 F.1-71/Domain: transit peptide (mitochondrion) #status experimental <TRP>  
 F.72-463/Product: dihydrolipoamide S-succinyltransferase #status experimental <MAT>  
 F.75-148/Domain: lipoyl/biotin-binding homology <LBP>  
 F.114/Binding site: liponamide (lys) (covalent) #status predicted  
 F.435/439/Active site: His, Asp #status predicted

Query Match 47.5%; Score 57; DB 1; Length 463;  
 Best Local Similarity 47.4%; Pred. No. 2.9;  
 Matches 9; Conservative 6; Mismatches 4; Indels 0; Gaps 0;

Qy 2 ECRPKDKRTKPEKCDKPR 20  
 Db 195 EAPRKETTERKADQPKK 213

RESULT 11  
 151295  
 vascular endothelial growth factor - quail (fragment)  
 C.Species: Phasianidae gen. sp. (quail)  
 C.Date: 13-Sep-1996 #sequence revision 13-Sep-1996 #text\_change 28-Feb-1997  
 C.Accession: 151295  
 R.Flamme, I.; Breier, G.; Risan, W.  
 Dev. Biol. 169, 699-712, 1995  
 A>Title: Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (Flk-1) are expe  
 A.Reference number: 151295; MUID:95301109; PMID:7781909  
 A.Accession: 151295  
 A.Status: preliminary; translated from GB/EMBL/DBJ  
 A.Molecule type: DNA  
 A.Residues: 1-128 <FLA>  
 A.Cross-references: GB:S78343; NID:9999147; PID:9999148  
 C.Genetics:  
 A.Gene: VEGF

Query Match 46.2%; Score 55.5; DB 2; Length 128;  
 Best Local Similarity 61.1%; Pred. No. 1.6;  
 Matches 11; Conservative 2; Mismatches 4; Indels 1; Gaps 1;

Qy 1 CECRPKD-RTKPEKCDK 17  
 Db 69 CECRPKDVKNKQEKSK 86

RESULT 12  
 MGHUB1  
 laminin beta-1 chain precursor - human  
 N.Alternate names: laminin chain B1  
 C.Species: Homo sapiens (man)  
 C.Date: 30-Jun-1991 #sequence revision 30-Jun-1991 #text\_change 19-Jan-2001  
 C.Accession: S13547; A28483; K26994; S23566  
 R.Vuolteenaho, R.; Chow, L.T.; Tryggvason, K.  
 J. Biol. Chem. 265, 15611-15616, 1990  
 A>Title: Structure of the human laminin B1 chain gene.  
 A.Reference number: S13547; MUID:90368768; PMID:1975589  
 A.Accession: S13547  
 A.Status: nucleic acid sequence not shown; translation not shown  
 A.Molecule type: DNA  
 A.Residues: 1-1786 <VVO>  
 A.Cross-references: GB:M61951; GB:J02778; NID:9186911; PIDN:AAA59486.1; PID:9186913  
 A.Note: the nucleotide sequence was submitted to GenBank, February 1991  
 R.Pikkarainen, T.; Eddy, R.; Fukushima, Y.; Byers, M.; Shows, T.; Pihlajaniemi, T.; Sarp  
 U. Biol. Chem. 262, 10454-10462, 1987  
 A>Title: Human laminin B1 chain. A multidomain protein with gene (LMNB1) locus in the q2  
 A.Reference number: A28483; MUID:87280097; PMID:3611077  
 A.Accession: A28483  
 A.Molecule type: mRNA  
 A.Residues: 1-1786 <PIK>  
 A.Cross-references: GB:M61951; GB:J02778; NID:9186911; PIDN:AAA59486.1; PID:9186913  
 R.Jaye, M.; Modi, W.S.; Ricca, G.A.; Mudd, R.; Chin, I.M.; O'Brien, S.J.; Droman, W.N.  
 Am. J. Hum. Genet. 41, 605-615, 1987  
 A>Title: Isolation of a cDNA clone for the human laminin-B1 chain and its gene localiza  
 A.Reference number: A26994; MUID:88021029; PMID:3661559



A:Accession: A26994  
 A:Molecule type: mRNA  
 A:Residues: 1276-1469, 'V', 1471-1695, 'G', 1697-1709 <JAY>  
 A:Cross-references: EMBL:M20206; NID:g186914; PIDD:AA5487.1; PID:g186915  
 R:Vuolteenaho, R.; Kallunki, T.; Chow, L.; Ikonen, J.; Pikkariainen, T.; Tytgasson, K.  
 In Extracellular Matrix Genes, Sandell L.U. and Boyd C.D., eds., pp. 175-193, Academic F  
 A:Title: Genes for the human laminin B1 and B2 chains.  
 A:Reference number: S23566  
 A:Accession: S23566  
 A:Molecule type: DNA  
 A:Residues: 762-1786 <VU2>  
 A:Note: mRNA was also sequenced  
 C:Genetics:  
 A:Gene: GDB:LAMB1  
 A:Cross-references: GDB:119357; OMIM:150240  
 A:Map position: 7q31.1-7q31.3  
 A:Intron: 13/1, 71/3, 117/1, 141/3, 204/3, 226/1, 293/3, 334/1, 397/1, 457/1, 494/3, 52  
 64/3, 1513/1, 1582/2, 1629/3, 1688/3, 1742/1  
 C:Complex: Laminins are trimers of an alpha-type, a beta-type, and a gamma-type laminin  
 C:Function:  
 A:Description: Interact with cells and with other basement membrane proteins to promote  
 C:Superfamily: laminin beta-1 chain; laminin-type EGF-like homology  
 C:Keywords: basement membrane; calcium binding; cell binding; coiled coil; extracellular  
 F:1-21/Domain: signal sequence #status predicted <SIG>  
 F:122-1786/Product: laminin beta-1 chain #status predicted <MAT>  
 F:122-270/Domain: VI <DOM5>  
 F:271-546/Domain: V <DOM5>  
 F:271-333/Domain: laminin-type EGF-like homology <LEB01>  
 F:335-395/Domain: laminin-type EGF-like homology <LEB02>  
 F:398-455/Domain: laminin-type EGF-like homology <LEB03>  
 F:458-507/Domain: laminin-type EGF-like homology <LEB04>  
 F:463-466/Region: cell adhesion #status predicted  
 F:510-540/Domain: laminin-type EGF-like homology #status atypical <LEB05>  
 F:549-774/Domain: IV <DOM4>  
 F:662-668/Region: cell adhesion #status predicted  
 F:773-818/Domain: laminin-type EGF-like homology <LEB06>  
 F:775-1178/Domain: III <DOM3>  
 F:821-864/Domain: laminin-type EGF-like homology <LEB07>  
 F:867-914/Domain: laminin-type EGF-like homology <LEB08>  
 F:917-973/Domain: laminin-type EGF-like homology <LEB09>  
 F:923-927/Region: cell adhesion #status predicted  
 F:950-954/Region: cell adhesion #status predicted  
 F:976-1025/Domain: laminin-type EGF-like homology <LEB10>  
 F:1028-1081/Domain: laminin-type EGF-like homology <LEB11>  
 F:1084-1129/Domain: laminin-type EGF-like homology <LEB12>  
 F:1133-1176/Domain: laminin-type EGF-like homology <LEB13>  
 F:1179-1397/Domain: II <DOM2>  
 F:1179-1397/Region: heptad repeats  
 F:1398-1430/Domain: alpha <ALP>  
 F:1431-1786/Region: I <DOM1>  
 F:1431-1786/Region: heptad repeats  
 F:30-35/Disulfide bonds: #status predicted  
 F:120,356,519,677,965,1041,1195,1279,1336,1343,1487,1542,1643/Binding site: carbohydrate  
 F:1179,1182,1785/Disulfide bonds: interchain #status predicted

Query Match 45.8%; Score 55; DB 1; Length 1786;  
 Best Local Similarity 52.9%; Pred. No. 16;  
 Matches 9; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY 1 CECRPRKQRTKPEKCDK 17  
 DB 976 CQCHNNIDTDPDEACDK 992

RESULT 13  
 MMSB1  
 laminin beta-1 chain precursor - mouse  
 N:Alternate names: laminin chain B1  
 C:Species: Mus musculus (house mouse)  
 C:Date: 28-Feb-1986 #sequence revision 30-Jun-1991 #text change 10-Dec-1999  
 C:Accession: A26413; S02679; S05326; S14877; A02871; S02036; S13543  
 R:Saeki, M.; Kato, S.; Kohno, K.; Martin, G.R.; Yamada, Y.  
 Proc. Natl. Acad. Sci. U.S.A. 84, 935-939, 1987

A:Title: Sequence of the cDNA encoding the laminin B1 chain reveals a multidomain protein  
 A:Reference number: A26413; MUID:87147212; PMID:3493487  
 A:Accession: A26413  
 A:Molecule type: mRNA  
 A:Residues: 1-1786 <SNAS>  
 A:Cross-references: EMBL:M15525; NID:g198700  
 A:Note: translation in GenBank has additional 48 residues at the amino end  
 R:Fujiwara, S.; Shinkai, H.; Deutzmann, R.; Paulsson, M.; Timpl, R.  
 Biochem. J. 252, 453-461, 1988  
 A:Title: Structure and distribution of N-linked oligosaccharide chains on various domain  
 A:Reference number: S02678; MUID:88326259; PMID:2458101  
 A:Accession: S02678  
 A:Molecule type: protein  
 A:Residues: 28-42,932-946 <FUJ>  
 R:Hartl, L.; Oberbauer, I.; Deutzmann, R.  
 Eur. J. Biochem. 173, 629-635, 1988  
 A:Title: The N termini of laminin A chain is homologous to the B chains.  
 A:Reference number: S00624; MUID:88225080; PMID:3267223  
 A:Accession: S05326  
 A:Molecule type: protein  
 A:Residues: 457-466,854-868,932-946 <HAR>  
 R:Mann, K.; Deutzmann, R.; Timpl, R.  
 Eur. J. Biochem. 178, 71-80, 1988  
 A:Title: Characterization of proteolytic fragments of the laminin-nidogen complex and th  
 A:Reference number: S08895; MUID:89078415; PMID:2462498  
 A:Accession: S14877  
 A:Molecule type: protein  
 A:Residues: 590-620 <MAN>  
 R:Barlow, D.P.; Green, N.M.; Kurkinen, M.; Hogan, B.L.M.  
 EMBO J. 3, 2355-2362, 1984  
 A:Title: Sequencing of laminin B chain cDNAs reveals C-terminal regions of coiled-coil a  
 A:Reference number: A02870; MUID:85051302; PMID:6209134  
 A:Accession: A02871  
 A:Molecule type: mRNA  
 A:Residues: 1292-1530, 'MEMP', 1535-1691, 'C', 1693-1748, 'N', 1750-1786 <BAR>  
 A:Cross-references: EMBL:X05212; NID:G52861; PIDD:CA28839.1; PID:G809042  
 R:Deutzmann, R.; Huber, J.; Schmetz, K.A.; Oberbauer, I.; Hartl, L.  
 Eur. J. Biochem. 177, 35-45, 1988  
 A:Title: Structural study of long arm fragments of laminin. Evidence for repetitive C-te  
 A:Reference number: S01790; MUID:89030693; PMID:3181157  
 A:Accession: S02036  
 A:Molecule type: protein  
 A:Residues: 1561-1587 <DEU>  
 R:Paulsson, M.; Deutzmann, R.; Timpl, R.; Dalzoppo, D.; Odermatt, E.; Engel, J.  
 EMBO J. 4, 309-316, 1985  
 A:Title: Evidence for coiled-coil alpha-helical regions in the long arm of laminin.  
 A:Reference number: S13543; MUID:85257455; PMID:3848400  
 A:Accession: S13543  
 A:Molecule type: protein  
 A:Residues: 1700-1748, 'N', 1750-1759 <PAU>  
 C:Genetics:  
 A:Gene: Lamb-1  
 A:Map position: 12  
 C:Complex: Laminins are trimers of an alpha-type, a beta-type, and a gamma-type laminin  
 C:Function:  
 A:Description: Interact with cells and with other basement membrane proteins to promote  
 C:Superfamily: laminin beta-1 chain; laminin-type EGF-like homology  
 C:Keywords: basement membrane; calcium binding; cell binding; coiled coil; extracellular  
 F:1-21/Domain: signal sequence #status predicted <SIG>  
 F:122-1786/Product: laminin beta-1 chain #status predicted <MAT>  
 F:122-270/Domain: VI <DOM5>  
 F:271-540/Domain: V <DOM5>  
 F:271-332/Domain: laminin-type EGF-like homology <LEB01>  
 F:335-395/Domain: laminin-type EGF-like homology <LEB02>  
 F:398-455/Domain: laminin-type EGF-like homology <LEB03>  
 F:458-507/Domain: laminin-type EGF-like homology <LEB04>  
 F:510-540/Domain: laminin-type EGF-like homology #status atypical <LEB05>  
 F:541-772/Domain: IV <DOM4>  
 F:773-1182/Domain: III <DOM3>  
 F:773-818/Domain: laminin-type EGF-like homology <LEB06>  
 F:821-864/Domain: laminin-type EGF-like homology <LEB07>  
 F:867-914/Domain: laminin-type EGF-like homology <LEB08>  
 F:917-973/Domain: laminin-type EGF-like homology <LEB09>

F:976-1025/Domain: laminin-type EGF-like homology <LE10>  
 F:1028-1081/Domain: laminin-type EGF-like homology <LE11>  
 F:1084-1129/Domain: laminin-type EGF-like homology <LE12>  
 F:1133-1176/Domain: laminin-type EGF-like homology <LE13>  
 F:1183-1197/Domain: II <DOM2>  
 F:1183-1197/Region: heptad repeats  
 F:1398-1430/Domain: alpha <ALP>  
 F:1431-1786/Region: heptad repeats  
 F:1431-1786/Domain: I <DOM1>  
 F:122/Modified site: pyroglutamate carboxylic acid (Gln) (in mature form) #status predicted  
 F:30-35/Disulfide bonds: #status predicted  
 F:120,356,519,677,1041,1195,1279,1336,1343,1487,1533,1542,1643/Binding site: carbohydrate  
 F:1179,1182,1785/Disulfide bonds: interchain #status predicted

Query Match 45.8%; Score 51; DB 2; Length 133;  
 Best Local Similarity 52.9%; Pred. No. 6; 7; Indels 0; Gaps 0;  
 Matches 9; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDK 17  
 DB 976 CQCHNIDTTDPACDK 992

## RESULT 14

JC4680  
 vascular endothelial growth factor-related factor 167 precursor - mouse

N:Alternate names: VRF 167 protein  
 C:Species: Mus musculus (house mouse)  
 C>Date: 10-May-1996 #sequence\_revision 19-Jul-1996 #text\_change 05-Nov-1999

C:Accession: JC4680

R:Tomson, S.; Lagercrantz, J.; Grimond, S.; Silins, G.; Nordenskjöld, M.; Weber, G.;

Biochem. Biophys. Res. Commun. 220, 922-928, 1996

A:Title: Characterization of the murine VEGF-related factor gene.

A:Reference number: JC4679; MUID:96183052; PMID:8607868

A:Accession: JC4680

A:Molecule type: mRNA

A:Residues: 1-188 <TOM>

A:Cross-references: GB:U43837; NID:G1314335; PIDN:AC5253.1; PID:G1314336

C:Comment: This factor is a mitogen, that is selective for endothelial cells, and belongs

to endothelial growth factors 167 and VEGF 186.

C:Genetics:

A:Gene: vrf

A:Map position: 19

A:Introns: 137/2

F:1-21/Domain: signal sequence #status predicted <SIG>

F:22-188/Product: vascular endothelial growth factor-related factor #status predicted <M

Query Match 43.8%; Score 52.5; DB 2; Length 188;  
 Best Local Similarity 57.9%; Pred. No. 5; 6;  
 Matches 11; Conservative 1; Mismatches 6; Indels 1; Gaps 1;

QY 1 CECRPKDKRTKPEKCDKPR 19  
 DB 122 CECRPK-KESAVKPDSPR 139

## RESULT 15

B49530

vascular endothelial growth factor homolog A2R, 14.7K - Orf virus

C:Species: Orf virus

C>Date: 07-Apr-1994 #sequence\_revision 18-Nov-1994 #text\_change 08-Oct-1999

C:Accession: B49530

R:Lytle, D.J.; Frazer, K.M.; Fleming, S.B.; Mercer, A.A.; Robinson, A.J.

J. Virol. 68, 84-92, 1994

A:Title: Homologs of vascular endothelial growth factor are encoded by the poxvirus orf

A:Reference number: A49530; MUID:94076465; PMID:8254780

A:Contents: NZ2

A:Accession: B49530

A:Status: preliminary

A:Molecule type: DNA

A:Residues: 1-133 <LYT>  
 A:Cross-references: GB:S67520; NID:G456897; PIDN:AB29220.1; PID:G456899

A:Note: sequence inconsistent with nucleotide translation

A:Note: sequence extracted from NCBI backbone (NCBIN:141420, NCBI:141425)

Query Match 42.5%; Score 51; DB 2; Length 133;

Best Local Similarity 45.0%; Pred. No. 6; 7;

Matches 9; Conservative 2; Mismatches 9; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPR 20  
 DB 112 CDCRPRTTTPPTTRPPR 131

Search completed: January 30, 2004, 11:46:14  
 Job time : 8.61539 secs

GenCore version 5.1.6  
Copyright (c) 1993 - 2004 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: January 30, 2004, 11:27:48 ; Search time 4.61538 Seconds  
(without alignments)  
203.762 Million cell updates/sec

Title: US-09-266-543-4  
Perfect score: 120  
Sequence: 1 CECRPKKDRTPKCKDKPRR 20

Scoring table: BLOSUM62  
Gapop. 10.0 , Gapext 0.5

Searched: 127863 seqs, 47026705 residues  
Total number of hits satisfying chosen parameters: 127863

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : SwissProt\_41:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	101	84.2	146	VEGA_SHEEP	P50412 ovine aries
2	83	69.2	214	VEGA_MOUSE	Q00731 mus musculus
3	83	69.2	214	VEGA_RAT	P16612 rattus norv
4	76	63.3	190	VEGA_MESAU	O99981 mesocricetu
5	69	57.5	190	VEGA_PIG	P43151 sus scrofa
6	67	55.8	214	VEGA_CANPA	O9mrv3 canis famli
7	67	55.8	232	VEGA_HUMAN	P15692 hom sapien
8	66	55.0	190	VEGA_BOVIN	P15691 bos taurus
9	66	55.0	190	VEGA_HORSE	O9gkr0 equus cabal
10	62	51.7	164	VEGA_CAVPO	P26617 cavia porce
11	57	47.5	146	ODO2_YEAST	P19262 saccharomyc
12	55.5	46.2	216	VEGA_CHICK	P52882 gallus gall
13	55	46.8	207	VEGB_BOVIN	O9x849 bos taurus
14	55	46.8	1786	LMB1_HUMAN	P07942 hom sapien
15	55	45.8	1786	LMB1_MOUSE	P02469 mus musculu
16	53	44.2	207	VEGB_HUMAN	P49765 hom sapien
17	51	42.5	133	VEGB_ORF2	P52884 orf virus
18	51	42.5	207	VEGB_MOUSE	P49766 mus musculu
19	51	42.5	235	BAR6_CHITE	P08726 chironomus
20	49.5	41.2	1700	BAR3_CHITE	Q03376 chironomus
21	49	40.8	655	YS44_CABEL	O09372 caenorhabdi
22	48.5	40.4	604	NET1_HUMAN	O95631 hom sapien
23	48.5	40.4	604	NET1_MOUSE	O09118 mus musculu
24	48	40.0	271	RL5_DUNSA	O22608 dunallella
25	47	39.2	135	VEGB_RAT	O35485 rattus norv
26	47	39.2	158	PLGF_MOUSE	P49764 mus musculu
27	47	39.2	158	PLGF_RAT	O63434 rattus norv
28	47	39.2	1038	SOG_DROME	O24425 drosophila
29	47	39.2	2616	NDL_DROME	P98135 drosophila
30	47	39.2	3951	VEG1_LBVB	P27920 avian infec
31	46	38.3	211	RIN4_ARATH	O95925 arabidopsis
32	45.5	37.9	248	SDGF_MOUSE	P31955 mus musculu
33	45.5	37.9	581	NET2_CHICK	Q90923 gallus gall

34	45.5	37.9	606	1	NET1_CHICK	Q90922 gallus gall
35	45	37.5	260	1	H11_VOLCA	Q08864 volvox cart
36	45	37.5	465	1	VFP2_YEAST	P43551 saccharomyc
37	45	37.5	607	1	PRO_VITV1	P43311 vitis vinif
38	44.5	37.1	796	1	Y056_CABEL	O09252 caenorhabdi
39	44.5	37.1	776	1	AD28_MACPA	Q9x816 macaca fasc
40	44	36.7	149	1	PLGF_BOVIN	O9x847 bos taurus
41	44	36.7	205	1	H1E_STRPV	P19375 strongyloce
42	44	36.7	221	1	PLGF_HUMAN	P49763 hom sapien
43	44	36.7	326	1	BAR1_CHIPA	P08724 chironomus
44	44	36.7	402	1	INT2_ECOLI	P76542 escherichia
45	44	36.7	639	1	PPO_SPIOI	P43310 spinacia ol

## ALIGNMENTS

```

RESULT 1
ID VEGA_SHEEP STANDARD; PRT; 146 AA.
AC P50412;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
DE VEGF OR VEGFA.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Kidney;
RX MEDLINE=97117958; PubMed=8958842;
RA Redmer D.A., Dai Y., Li J., Charnock-Jones D.S., Smith S.K.,
RA Reynolds L.P., Moor R.M.;
RT "Characterization and expression of vascular endothelial growth
RT factor (VEGF) in the ovine corpus luteum.";
RL J. Reprod. Fert. 108:157-165 (1996).
CC -!- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -!- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PLGF (By similarity).
CC -!- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC
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CC
CC EMBL; X89506; CAA61677.1; -.
CC PIR; S57956; S57956.
CC HSSP; P15692; 1YVP.
CC InterPro; IPR00072; PD_growth_factor.
CC Pfam; PF00341; PDGF_1.
CC PRODom; PD001629; PD_growth_factor; 1.
CC SMART; SM00141; PDGF_1.
CC PROSITE; PS00249; PDGF_2; 1.
CC PROSITE; PS00278; PDGF_2; 1.
CC Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
CC Heparin-binding; Multigene family.
CC SIGNAL 1 26 BY SIMILARITY.
CC CHAIN 27 146 VASCULAR ENDOTHELIAL GROWTH FACTOR A.
CC FT 93 BY SIMILARITY.
CC DISULFID 51 93

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FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CAROARD 100 100 N-LINKED (GLCNC. . .) (POTENTIAL).
SQ SEQUENCE 146 AA; 17247 MW; 4E792CB57P91760 CRC64;

Query Match
Best Local Similarity 80.0%; Pred. No. 2e-07; Length 146;
Matches 16; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CECRPRKORTKPEKCDKPRR 20
Db 127 CECRPRKOKAROKCDKPRR 146

RESULT 2
VEGA_MOUSE STANDARD; PRT; 214 AA.
AC 000731;
DT 01-APR-1993 (Rel. 25, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_Taxid=10090;
RN [1]
RP SEQUENCE FROM N.A. (ISOFORM VEGF-1; VEGF-2 AND VEGF-3).
RX MEDLINE=92274860; PubMed=1592003;
RA Breier G., Albrecht U., Sterrer S., Risau W.;
RT "Expression of vascular endothelial growth factor during embryonic angiogenesis and endothelial cell differentiation."
RT Development 114:521-532(1992).
RN [2]
RP SEQUENCE FROM N.A. (ISOFORM VEGF-1).
RX MEDLINE=92355593; PubMed=1644816;
RA Clafey K.P., Wilkison W.O., Spiegelman B.M.;
RT "Vascular endothelial growth factor. Regulation by cell differentiation and activated second messenger pathways."
RT J. Biol. Chem. 267:16317-16322(1992).
RN [3]
RP SEQUENCE OF 1-3 FROM N.A.
RX MEDLINE=96216498; PubMed=8632007;
RA Shima D.T., Kuroki M., Deutech U., Ng Y., Adams A.P., D'Amore P.A.;
RT "The mouse gene for vascular endothelial growth factor. Genomic structure, definition of the transcriptional unit, and characterization of transcriptional and post-transcriptional regulatory sequences."
RT J. Biol. Chem. 271:3877-3883(1996).
RN [4]
RP FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (by similarity).
RN [5]
RP SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (by similarity).
RN [6]
RP SUBCELLULAR LOCATION: VEGF-1 and VEGF-2 are secreted while VEGF-3 remains cell-surface associated unless released by heparin.
RN [7]
RP ALTERNATIVE PRODUCTS: Named isoforms=3;
RN [8]
RP Event=Alternative splicing; Named isoforms=3;
RN [9]
RP Name=VEGF-3; Synonyms=VEGF18;
RN [10]
RP IsoId=Q00731-1; Sequence=Displayed;
RN [11]
RP Name=VEGF-1; Synonyms=VEGF164;
RN [12]
RP IsoId=Q00731-2; Sequence=VSP_004626; VSP_004627;
RN [13]
RP Name=VEGF-2; Synonyms=VEGF120;
RN [14]
RP IsoId=Q00731-3; Sequence=VSP_004628;
RN [15]
RP TISSUE SPECIFICITY: In developing embryos, expressed mainly in the choroid plexus, paraventricular neuroepithelium, placenta and

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CC kidney glomeruli. Also found in bronchial epithelium, adrenal gland and in seminiferous tubules of testis. High expression of VEGF continues in kidney glomeruli and choroid plexus in adults.
CC -1- DOMAIN: VEGF-3 contains a basic insert which acts as a cell retention signal.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
DR EMBL; S37052; AAB22252.1; -
DR EMBL; S38083; AAB22253.1; -
DR EMBL; S38100; AAB22254.1; -
DR EMBL; M95200; AAA40547.1; -
DR EMBL; U41383; -; NOT_ANNOTATED_CDS.
DR PIR; A44881; A44881.
DR PIR; B44881; B44881.
DR HSSP; P15692; 2VPF.
DR MGD; MGI:103178; Vegfa.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal; Heparin-binding; Alternative splicing; Multigene family.
FT SIGNAL 1 26
FT CHAIN 27 214 VASCULAR ENDOTHELIAL GROWTH FACTOR A.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CAROARD 100 100 N-LINKED (GLCNC. . .) (PROBABLE).
FT VARSPLIC 140 140 K-> N (in isoform VEGF-1).
FT VARSPLIC 141 164 /FTid=VSP_004626.
FT VARSPLIC 141 164 /FTid=VSP_004627.
FT VARSPLIC 141 208 /FTid=VSP_004628.
FT VARSPLIC 141 208 /FTid=VSP_004629.
FT VARSPLIC 141 208 /FTid=VSP_004630.
FT VARSPLIC 141 208 /FTid=VSP_004631.
FT VARSPLIC 141 208 /FTid=VSP_004632.
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RP SEQUENCE FROM N.A. (ISOFORM VEGF-A164), AND SEQUENCE OF 27-190.  
 RX MEDLINE=90207249; PubMed=2320579;  
 RA Conn G., Bayne M.L., Soderman D.D., Kwok P.W., Sullivan K.A.,  
 RA Palleri T.M., Hope D.A., Thomas K.A.;  
 RT "Amino acid and cDNA sequences of a vascular endothelial cell mitogen  
 RT that is homologous to platelet-derived growth factor.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 87:2628-2633(1990).  
 RN [2]  
 RP SEQUENCE FROM N.A. (ISOFORMS VEGF-A188; VEGF-A164; VEGF-A144 AND  
 RP VEGF-A120).  
 RA Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;  
 RT "Developmental expression of vascular endothelial growth factor-A  
 RT (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat  
 RT masseter muscle.";  
 RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.  
 RN [3]  
 RP SEQUENCE OF 27-40.  
 RC TISSUE=Glial tumor;  
 RX MEDLINE=95221439; PubMed=7706320;  
 RA Disalvo J., Bayne M.L., Conn G., Kwok P.W., Trivedi P.G.,  
 RA Soderman D.D., Palleri T.M., Sullivan K.A., Thomas K.A.;  
 RT "Purification and characterization of a naturally occurring vascular  
 RT endothelial growth factor/placenta growth factor heterodimer.";  
 RL J. Biol. Chem. 270:7717-7723(1995).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: VEGF-A120 is acidic and freely secreted.  
 CC VEGF-A164 is more basic, has heparin-binding properties and,  
 CC although a significant proportion remains cell-associated, most is  
 CC freely secreted. VEGF-A188 is very basic; it is cell-associated  
 CC after secretion and is bound avidly by heparin and the  
 CC extracellular matrix, although it may be released as a soluble  
 CC form by heparin, heparinase or plasmin (By similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=4;  
 CC Comment=Additional isoforms seem to exist;  
 CC Name=VEGF-A188;  
 CC IsoId=PI6612-1; Sequence=Displayed;  
 CC Name=VEGF-A164;  
 CC IsoId=PI6612-2; Sequence=VSP\_004629, VSP\_004630;  
 CC Name=VEGF-A144;  
 CC IsoId=PI6612-3; Sequence=VSP\_004632;  
 CC Name=VEGF-A120;  
 CC IsoId=PI6612-4; Sequence=VSP\_004631;  
 CC -1- TISSUE SPECIFICITY: Expressed in the pituitary, in brain, in  
 CC particularly in suprapubic and paraventricular nuclei and the  
 CC choroid plexus. Also found abundantly in the corpus luteum of the  
 CC ovary and in kidney glomeruli.  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 DR EMBL; M32167; AAA41211.1; -;  
 DR EMBL; AF215725; AAF19211.1; -;  
 DR EMBL; AF215726; AAF19212.1; -;  
 DR EMBL; AF222779; AAF25958.1; -;  
 DR HSSP; P15692; 1VPP;  
 DR InterPro; IPR000072; PD\_growth\_factor;  
 DR Pfam; PF000341; PDGF, 1;  
 DR ProDom; PD001629; PD\_growth\_factor, 1;  
 DR SMART; SM00141; PDGF, 1.

DR PROSITE; PS00249; PDGF 1; 1.  
 DR PROSITE; PS0278; PDGF 2; 1.  
 KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KW Heparin-binding; Alternative splicing; Multigene family.  
 FT CHAIN 1 26  
 FT SIGNAL 1 26  
 FT DISULFID 27 24  
 FT DISULFID 51 93  
 FT DISULFID 82 127  
 FT DISULFID 86 129  
 FT DISULFID 76 76  
 FT DISULFID 85 85  
 FT CARBOHYD 100 100  
 FT VARSPLYC 140 140  
 FT VARSPLYC 141 164  
 FT VARSPLYC 141 208  
 FT VARSPLYC 165 208  
 FT CONFLICT 101 101  
 FT SEQUENCE 214 AA; 25239 MW; 60FB876F5304946 CRC64;  
 Query Match 69.2%; Score 83; DB 1; Length 214;  
 Best Local Similarity 100.0%; Pred. No. 9.2e-05;  
 Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CECRPRKORTKPEK 14  
 DB 127 CECRPRKORTKPEK 140  
 RESULT 4  
 VEGA\_MESAU STANDARD; PRT; 190 AA.  
 AC Q99PS1;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 DE permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Mesocricetus auratus (Golden hamster).  
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;  
 OC Mesocricetus.  
 OX NCBI\_TaxId=10036;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=decidua, and Embryo;  
 RX MEDLINE=9911285; PubMed=10382276;  
 RA Yi X.J., Jiang H.Y., Lee K.K., Tang P.L., Chow P.H.;  
 RT "Expression of vascular endothelial growth factor (VEGF) and its  
 RT receptors during embryonic implantation in the golden hamster  
 RT (Mesocricetus auratus)." ;  
 RL Cell Tissue Res. 296:339-349(1999).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or  
 CC to the extracellular matrix unless released by heparin (By  
 CC similarity).  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 DR EMBL: AF063013; AAK00049.1; -  
 DR HSSP: P15692; 1VGH.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF\_1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART: SM00141; PDGF\_1.  
 DR PROSITE: PS00249; PDGF\_1; 1.  
 DR PROSITE: PS0278; PDGF\_2; 1.  
 KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KW Heparin-binding; Multigene family.  
 FT SIGNAL 1 26 BY SIMILARITY.  
 FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 FT DISULFID 51 93 BY SIMILARITY.  
 FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CARBOHYD 100 100 N-LINKED (GLCNAC...) (POTENTIAL).  
 SQ SEQUENCE 190 AA; 22276 MW; F00C5A6EA79A465F CRC64;  
 Query Match 63.3%; Score 76; DB 1; Length 190;  
 Best Local Similarity 28.1%; Pred. No. 0.00076;  
 Matches 18; Conservative 1; Mismatches 1; Indels 44; Gaps 1;  
 QY 1 CECRPKDKRTKPE-----KCD 16  
 DB 127 CECRPKDKRTKPE-----KCD 16  
 QY 17 KPRR 20  
 DB 187 KPRR 190  
 RESULT 5  
 VEGA\_PIG STANDARD; PRT; 190 AA.  
 AC P49151; Q9GL52;  
 DT 01-FEB-1996 (Rel. 33, Created)  
 DT 01-FEB-1996 (Rel. 33, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 DE permeability factor) (VFP).  
 GN VEGF OR VEGFA.  
 OS Sus scrofa (Pig).  
 OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.  
 OX NCBI\_TaxID=9823;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Heart;  
 RX MEDLINE=95143284; PubMed=7841203;  
 RA Sharma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;  
 RT "Nucleotide sequence and expression of the porcine vascular  
 RT endothelial growth factor.";  
 RL Biochim. Biophys. Acta 1260:235-238 (1995).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RA Lee T., Canty J.M.;  
 RT "PCR cloning of porcine cardiac vascular endothelial growth factor  
 RT gene.";  
 RL Submitted (NOV-2000) to the EMBL/GenBank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Fit-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (By similarity).

CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or  
 CC to the extracellular matrix unless released by heparin (By  
 CC similarity).  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 DR EMBL: X81380; AAC57143.1; -  
 DR EMBL: AF118502; AAG33064.1; -  
 DR PIR: S52130; S52130.  
 DR HSSP: P15692; 1VGH.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF\_1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART: SM00141; PDGF\_1.  
 DR PROSITE: PS00249; PDGF\_1; 1.  
 DR PROSITE: PS0278; PDGF\_2; 1.  
 KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KW Heparin-binding; Multigene family.  
 FT SIGNAL 1 26 POTENTIAL.  
 FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 FT DISULFID 51 93 BY SIMILARITY.  
 FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CARBOHYD 100 100 N-LINKED (GLCNAC...) (POTENTIAL).  
 FT CONFLICT 102 102 T -> A (IN REF. 2).  
 SQ SEQUENCE 190 AA; 22368 MW; 04D408BD7913047F CRC64;  
 Query Match 57.5%; Score 69; DB 1; Length 190;  
 Best Local Similarity 25.0%; Pred. No. 0.0071;  
 Matches 16; Conservative 2; Mismatches 2; Indels 44; Gaps 1;  
 QY 1 CECRPKDKRTKPE-----KCD 16  
 DB 127 CECRPKDKRTKPE-----KCD 16  
 QY 17 KPRR 20  
 DB 187 KPRR 190  
 RESULT 6  
 VEGA\_CANPA STANDARD; PRT; 214 AA.  
 AC Q9MTV3; Q9XSF3; Q9XSF4; Q9XSF5;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 DE permeability factor) (VFP).  
 GN VEGF OR VEGFA.  
 OS Canis familiaris (Dog).  
 OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.  
 OX NCBI\_TaxID=9615;  
 RN [1]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF-188).  
 RX MEDLINE=2012516; PubMed=10661874;  
 RA Schindigger P., Weighofer W., Suarez S., Kaser-Holz B., Steiner R.,  
 RA Ballmer-Hofer K., Jansel R.;  
 RT "Vascular endothelial growth factor (VEGF) and its receptors in tumor-  
 RT bearing dogs.";  
 RL Biol. Chem. 380:1449-1454 (1999).  
 RN [2]  
 RP SEQUENCE FROM N.A. (ISOFORMS VEGF-188; VEGF-182 AND VEGF-164).

CC TISSUE=Heart;  
 RA Jijngling L., Roque R.S.;  
 RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with p16g (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or  
 CC at the extracellular matrix unless released by heparin (By  
 CC similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event-Alternative splicing; Named isoforms=3;  
 CC Comment=Additional isoforms seem to exist;  
 CC Name=VEGF-188;  
 CC IsoId=Q9MYV3-1; Sequence=Displayed;  
 CC Name=VEGF-182;  
 CC IsoId=Q9MYV3-2; Sequence=VSP\_004617;  
 CC Name=VEGF-164;  
 CC IsoId=Q9MYV3-3; Sequence=VSP\_004615, VSP\_004616;  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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 CC -----  
 CC DR EMBL, AJ133758; CAB83426.1; -;  
 CC DR EMBL, AF133250; AAD28684.1; -;  
 CC DR EMBL, AF133249; AAD29683.1; -;  
 CC DR EMBL, AF133248; AAD29682.1; -;  
 CC DR HSSP; P15692; 1VGH.  
 CC InterPro: IPR000072; PD\_growth\_factor.  
 CC DR Pfam; PF00341; PDGF; 1. PD\_growth\_factor.  
 CC DR ProDom; PD001629; PD\_growth\_factor; 1.  
 CC DR SMART; SM00141; PDGF; 1.  
 CC DR PROSITE; PS00249; PDGF\_1; 1.  
 CC DR PROSITE; PS02278; PDGF\_2; 1.  
 CC DR Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 CC Heparin-binding; Alternative splicing; Multigene family.  
 CC KW SIGNAL.  
 CC FT CHAIN 1 26  
 CC FT DISULFID 27 214  
 CC FT DISULFID 51 93  
 CC FT DISULFID 82 129  
 CC FT DISULFID 86 127  
 CC FT DISULFID 76 76  
 CC FT DISULFID 85 85  
 CC FT CARBOHYD 100 100  
 CC FT VARSPLIC 140 140  
 CC FT VARSPLIC 141 164  
 CC FT VARSPLIC 159 164  
 CC FT CONFLICT 143 143  
 CC FT CONFLICT 161 161  
 CC FT SEQUENCE 214 AA; 25175 MW; 0AC980A158C44A27 CRC64;  
 CC  
 CC Query Match 55.8%; Score 67; DB 1; Length 214;  
 CC Best Local Similarity 78.6%; Pident. No. 0.015;  
 CC Matches 11; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
 CC  
 CC QY 1 CECRPKXKRTKPER 14  
 CC Db 127 CECRPKXKRTKPER 140

RESULT 7  
 ID VEGA HUMAN STANDARD; PRT; 232 AA.  
 AC P15552; O66720; O75875; Q16889; Q96NM5; Q9H1W8; Q9H1W9; Q9UH58;  
 AC Q9UT23;  
 DT 01-APR-1990 (Rel. 14, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 DE permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxId=9606;  
 RP 3 [1]  
 RP SEQUENCE FROM N.A. (ISOFORMS VEGF189 AND VEGF165).  
 RX MEDLINE=90069608; PubMed=2479986;  
 RA Leung D.W., Cachianes G., Kiang W.-J., Goeddel D.V., Ferrara N.;  
 RT "Vascular endothelial growth factor is a secreted angiogenic  
 RT mitogen.";  
 RL Science 246:1306-1309 (1989).  
 RN [2]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF189), AND PARTIAL SEQUENCE.  
 RX MEDLINE=90069609; PubMed=2479987;  
 RA Kock P.J., Hauser S.D., Krivi G., Sanzo K., Warren T., Feder J.,  
 RT Connolly D.T.;  
 RT "Vascular permeability factor, an endothelial cell mitogen related to  
 RT PDGF.";  
 RL Science 246:1309-1312 (1989).  
 RN [3]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF189).  
 RX MEDLINE=91268072; PubMed=1711045;  
 RA Tischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D.,  
 RA Fiddes J.C., Abraham J.A.;  
 RT "The human gene for vascular endothelial growth factor. Multiple  
 RT protein forms are encoded through alternative exon splicing.";  
 RL J. Biol. Chem. 266:11947-11954 (1991).  
 RN [4]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF206).  
 RX MEDLINE=92168017; PubMed=1791831;  
 RA Houck K.A., Ferrara N., Miner J., Cachianes G., Li B., Leung D.W.;  
 RT "The vascular endothelial growth factor family: identification of a  
 RT fourth molecular species and characterization of alternative splicing  
 RT of RNA.";  
 RL Mol. Endocrinol. 5:1806-1814 (1991).  
 RN [5]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RX MEDLINE=92231879; PubMed=1567395;  
 RA Weindel K., Marne D., Welch H.A.;  
 RT "AIDS-associated Kaposi's sarcoma cells in culture express vascular  
 RT endothelial growth factor.";  
 RL Biochem. Biophys. Res. Commun. 183:1167-1174 (1992).  
 RN [6]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF145).  
 RX MEDLINE=92707275; PubMed=9054410;  
 RA Poltorak Z., Cohen T., Sivan R., Kandelis Y., Spira G., Vlodavsky I.,  
 RA Keshet E., Neufeld G.;  
 RT "VEGF145, a secreted vascular endothelial growth factor isoform that  
 RT binds to extracellular matrix.";  
 RL J. Biol. Chem. 272:7151-7158 (1997).  
 RN [7]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF183).  
 RC TISSUE=Kidney;  
 RX MEDLINE=9906474; PubMed=9878851;  
 RA Lei J., Jiang A., Pei D.;  
 RT "Identification and characterization of a new splicing variant of  
 RT vascular endothelial growth factor: VEGF183.";  
 RL Biochim. Biophys. Acta 1443:400-406 (1998).  
 RN [8]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RC TISSUE=Breast;  
 RX MEDLINE=98119755; PubMed=9450968;

RA Clafey K.P., Shih S.-C., Mullen A., Dziennis S., Cusick J.L.,  
 RA Abrams K.R., Lee S.W., Detmar M.,  
 RT "Identification of a human VEGF/VEGF-3 untranslated region mediating  
 RT hypoxia-induced mRNA stability.";  
 RL Mol. Biol. Cell 9:469-481(1998).  
 RN (9)  
 RP SEQUENCE OF 114-209 FROM N.A. (ISOFORM VEGF183).  
 RC TISSUE=Retina;  
 RX MEDLINE=99165303; PubMed=10067980;  
 RA Jingjing L., Xue Y., Agarwal N., Roque R.S.;  
 RT "Human Muller cells express VEGF183, a novel spliced variant of  
 RT vascular endothelial growth factor.";  
 RL Invest. Ophthalmol. Vis. Sci. 40:752-759(1999).  
 RN (10)  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RC TISSUE=Hemangioidenothelioma.  
 RA Murata H., Fukushima J., Hattori S., Okuda K., Yanagi H.,  
 RT "Human CDNA for the vascular endothelial growth factor isoform  
 RT VEGF165.";  
 RL Submitted (DEC-1998) to the EMBL/GenBank/DBJ databases.  
 RN (11)  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF148).  
 RC TISSUE=renal glomerulus;  
 RX MEDLINE=99394945; PubMed=10464055;  
 RA Whittle C.J., Gillespie K.M., Harrison R., Mathieson P.W.,  
 RT Harper S.J.;  
 RT "Heterogeneous vascular endothelial growth factor (VEGF) isoform mRNA  
 RT and receptor mRNA expression in human glomeruli, and the  
 RT identification of VEGF148 mRNA, a novel truncated splice variant.";  
 RL Clin. Sci. 97:303-312(1999).  
 RN (12)  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF121).  
 RA Sato J.D., Whitney R.G.;  
 RT Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.  
 RN (13)  
 RP SEQUENCE FROM N.A.  
 RA Williams S.;  
 RL Submitted (DEC-2000) to the EMBL/GenBank/DBJ databases.  
 RN (14)  
 RP SEQUENCE OF 23-233 FROM N.A. (VEGF165).  
 RA Rieder M.J., Armet T.Z., Carrington D.P., Chung M.-W., Lee K.L.,  
 RA Poel C.L., Toch E.J., Yi Q., Nickerson D.A.;  
 RL Submitted (OCT-2001) to the EMBL/GenBank/DBJ databases.  
 RN (15)  
 RP PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.  
 RX MEDLINE=90062112; PubMed=2584205;  
 RA Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monseil R.,  
 RA Siegel N., Haymore B.L., Letmugruber R., Feder J.;  
 RT "Human vascular permeability factor. Isolation from U937 cells.";  
 RL J. Biol. Chem. 264:20017-20024(1989).  
 RN (16)  
 RP SEQUENCE OF 27-41.  
 RX MEDLINE=93145946; PubMed=7678805;  
 RA Fiebig B.L., Jaeger B., Schoellmann C., Weindel K., Wilting J.,  
 RA Koche G., Marne D., Hug H., Weich H.A.;  
 RT "Synthesis and assembly of functionally active human vascular  
 RT endothelial growth factor homodimers in insect cells.";  
 RL Eur. J. Biochem. 211:19-26(1993).  
 RN (17)  
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.  
 RX MEDLINE=97352774; PubMed=9207067;  
 RA Muller Y.A., Li B., Christinger H.W., Wells J.A., Cunningham B.C.,  
 RA de Vos A.M.;  
 RT "Vascular endothelial growth factor: crystal structure and functional  
 RT mapping of the kinase domain receptor binding site.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).  
 RN (18)  
 RP X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.  
 RX MEDLINE=98035455; PubMed=93181807;  
 RA Muller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;  
 RT "The crystal structure of vascular endothelial growth factor (VEGF)  
 RT refined to 1.93-A resolution: multiple copy flexibility and receptor

RT binding.";  
 RL Structure 5:1325-1338(1997).  
 RN (19)  
 RP X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.  
 RX MEDLINE=99119204; PubMed=9922142;  
 RA Wiesmann C., Christinger H.W., Cochran A.G., Cunningham B.C.,  
 RA Fairbrother W.J., Keenan C.J., Meng G., de Vos A.M.;  
 RT "Crystal structure of the complex between VEGF and a receptor-blocking  
 RT peptide.";  
 RL Biochemistry 37:17765-17772(1998).  
 RN (20)  
 RP STRUCTURE BY NMR OF 34-135.  
 RX MEDLINE=97477915; PubMed=9336848;  
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,  
 RA Starovasnik M.A.;  
 RT "1H, 13C, and 15N backbone assignment and secondary structure of the  
 RT receptor-binding domain of vascular endothelial growth factor.";  
 RL Protein Sci. 6:2250-2260(1997).  
 RN (21)  
 RP STRUCTURE BY NMR OF 137-215.  
 RX MEDLINE=98298440; PubMed=9634701;  
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,  
 RA Starovasnik M.A.;  
 RT "Solution structure of the heparin-binding domain of vascular  
 RT endothelial growth factor.";  
 RL Structure 6:637-648(1998).  
 RN (22)  
 RP FUNCTION.  
 RX MEDLINE=21320570; PubMed=11427521;  
 RA Murphy J.F., Fitzgerald D.J.;  
 RT "Vascular endothelial growth factor induces cyclooxygenase-dependent  
 RT proliferation of endothelial cells via the VEGF-2 receptor.";  
 RL FASEB J. 15:1667-1669(2001).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin. Neupoptin-1 binds isoforms VEGF-165 and VEGF-145.  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (by similarity).  
 CC -1- SUBCELLULAR LOCATION: VEGF121 is acidic and freely secreted.  
 CC VEGF165 is more basic, has heparin-binding properties and,  
 CC although a significant proportion remains cell-associated, most is  
 CC freely secreted. VEGF189 is very basic; it is cell-associated  
 CC after secretion and is bound avidly by heparin and the  
 CC extracellular matrix, although it may be released as a soluble  
 CC form by heparin, heparinase or plasmin.  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=7;  
 CC Comment=Experimental confirmation may be lacking for some  
 CC isoforms;  
 CC Name=VEGF206;  
 CC IsoId=P15692-1; Sequence=Displayed;  
 CC Name=VEGF189;  
 CC IsoId=P15692-2; Sequence=VSP\_004622;  
 CC  
 CC Query Match 55.8%; Score 67; DB 1; Length 232;  
 CC Best Local Similarity 78.6%; Pred. No. 0.016;  
 CC Matches 11; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
 CC  
 CC QY 1 CECRPKDKRTPEK 14  
 CC ||||| : ||  
 CC Db 128 CECRPKDKRAQEK 141  
 CC  
 CC RESULT 8  
 CC VEGA BOVIN STANDARD; PRT: 190 AA.  
 CC AC P15691.  
 CC DT 01-APR-1990 (Rel. 14, Created)  
 CC DT 01-APR-1990 (Rel. 14, Last sequence update)  
 CC DT 28-FEB-2003 (Rel. 41, Last annotation update)



DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPE).  
 DE VEGF OR VEGFA.  
 OS Bos taurus (Bovine).  
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovinae; Bos.  
 NCBI\_TaxID=9913;  
 [1]  
 RN SEQUENCE FROM N.A. AND SEQUENCE OF 27-47.  
 RP MEDLINE=90069608; PubMed=2479986;  
 RX Leung D.W., Cachanes G., Kuang W.-J., Goeddel D.V., Ferrara N., RA "Vascular endothelial growth factor is a secreted angiogenic mitogen.";  
 RT Science 246:1306-1309(1999).  
 RL [2]  
 RN SEQUENCE OF 27-190 FROM N.A. (ISOFORMS ALPHA AND BETA).  
 RP MEDLINE=90121225; PubMed=2610687;  
 RX Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J., RA Lau K., Crisp T., Fiddes J.C., Abraham J.A.;  
 RT "Vascular endothelial growth factor: a new member of the platelet-derived growth factor gene family.";  
 RL Biochem. Biophys. Res. Commun. 165:1198-1206(1989).  
 RN [3]  
 RP SEQUENCE OF 27-31.  
 RX MEDLINE=89286596; PubMed=2735925;  
 RA Ferrara N., Henzel W.J.;  
 RT "Pituitary follicular cells secrete a novel heparin-binding growth factor specific for vascular endothelial cells.";  
 RL Biochem. Biophys. Res. Commun. 161:851-858(1989).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=2;  
 CC Name=Alpha;  
 CC IsoId=PI5691-1; Sequence=Displayed;  
 CC Name=Beta;  
 CC IsoId=PI5691-2; Sequence=VSP\_004613; VSP\_004614;  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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 CC -----  
 CC EMBL: M32976; AAA30502.1; -  
 CC EMBL: M31836; AAA30804.1; -  
 CC EMBL: M33750; AAA30805.1; -  
 CC PIR: B40080; B40080.  
 CC HSSP: P15692; 1VGH.  
 CC InterPro: IPR000072; PD\_growth\_factor.  
 CC Pfam: PF00341; PDGF\_1.  
 CC ProDom: PD001629; PD\_growth\_factor; 1.  
 CC SMART: SM00141; PDGF\_1.  
 CC PROSITE: PS00249; PDGF\_1; 1.  
 CC PROSITE: PS00278; PDGF\_2; 1.  
 CC Mitogen: Angiogenesis; Growth factor; Glycoprotein; Signal;  
 CC Heparin-binding; Alternative splicing; Multigene family.  
 CC SIGNAL 1 26  
 CC CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 CC FT 51 93 BY SIMILARITY.  
 CC DISULFID 51 93

FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CAROHD 100 100 N-LINKED (GLCNAc. . .) (POTENTIAL).  
 FT VARSPLIC 139 183 Missing (in Isoform Beta).  
 FT VARSPLIC 184 184 /FTId=VSP\_004613.  
 FT VARSPLIC 184 184 R -> K (in Isoform Beta).  
 FT SEQUENCE 190 AA; 22310 MW; EDBF903E46E24789 CRC64;  
 SO Query Match 55.0%; Score 66; DB 1; Length 190;  
 Best Local Similarity 23.4%; Pred. No. 0.018;  
 Matches 15; Conservative 3; Mismatches 2; Indels 44; Gaps 1;  
 QY 1 CECRKKRTRPE-----KCD 16  
 DB 127 CECRKKDKAQENCGPCSRKRLFVQDPQCKSCKNTDSRCKARQLINERTCRCD 186  
 QY 17 KPRR 20  
 DB 187 KPRR 190  
 DB 187 KPRR 190  
 RESULT 9  
 VEGA HORSE STANDARD; PRT; 190 AA.  
 ID VEGA HORSE STANDARD; PRT; 190 AA.  
 AC Q9GKR0;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPE).  
 GN VEGF OR VEGFA.  
 OS Equus caballus (Horse).  
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Perissodactyla; Equidae; Equus.  
 NCBI\_TaxID=9796;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Miura N., Miura K., Kawahara K., Nakashima M., Fukumitsu S., RA Kawabata H., Uto N., Oka T., Maruyama I., Sakamoto H.;  
 RT "Cloning of cDNA and high-level expression of equine vascular endothelial growth factor (VEGF).";  
 RL Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis and endothelial cell growth. Induces endothelial proliferation and vascular permeability (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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 CC -----  
 CC EMBL: AB053350; BAB20890.1; -  
 CC HSSP: P15692; 1VGH.  
 CC InterPro: IPR000072; PD\_growth\_factor.  
 CC Pfam: PF00341; PDGF\_1.  
 CC ProDom: PD001629; PD\_growth\_factor; 1.  
 CC SMART: SM00141; PDGF\_1.  
 CC PROSITE: PS00249; PDGF\_1; 1.  
 CC PROSITE: PS00278; PDGF\_2; 1.  
 CC Mitogen: Angiogenesis; Growth factor; Glycoprotein; Signal;  
 CC Multigene family.

```

FT SIGNAL 1 26 POTENTIAL.
FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CAROHND 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ SEQUENCE 190 AA; 22312 MW; 8759E1614395F87 CRC64;

Query Match 55.0%; Score 66; DB 1; Length 190;
Best Local Similarity 23.4%; Pred. No. 0.018;
Matches 15; Conservative 3; Mismatches 2; Indels 44; Gaps 1;

Qy 1 CECRPRKQRTKPE-----KCD 16
Db 127 CECRPRKQARQENPCGSCERRKHLFVQDPQTCCKSCNTDSCKARQLEINERTCRCD 186

Qy 17 KPRR 20
Db 187 KPRR 190

RESULT 10
VEGA_CAVPO STANDARD; PRT; 164 AA.
ID VEGA_CAVPO
AC P26617;
DT 01-AUG-1992 (Rel. 23, Created)
DT 01-AUG-1992 (Rel. 23, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A (VEGF-A) (Vascular permeability
DE factor) (VEF).
GN VEGF OR VEGFA.
OS Cavia porcellus (Guinea pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Hystriocognathi; Caviidae; Cavia.
OX NCBI_TaxID=10141;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Blle duct;
RA Berse B.;
RL Submitted (JAN-1992) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial
CC cell growth. Induces endothelial proliferation and vascular
CC permeability (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (By
CC similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC
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CC
CC EMBL; M84230; AAA37057.1; -.
CC HSSP; P15692; 1VGH.
CC InterPro; IPR000072; PD_growth_factor.
CC Pfam; PF00341; PDGF; 1.
CC ProDom; PD001629; PD_growth_factor; 1.
CC SMART; SM00141; PDGF; 1.
CC PROSITE; PS00249; PDGF_1; 1.
CC PROSITE; PS50278; PDGF_2; 1.
CC Mitogen; Angiogenesis; Growth factor; Glycoprotein.
FT DISULFID 25 67 BY SIMILARITY.
FT DISULFID 56 101 BY SIMILARITY.
FT DISULFID 60 103 BY SIMILARITY.
FT DISULFID 50 50 INTERCHAIN (BY SIMILARITY).

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FT DISULFID 59 59 INTERCHAIN (BY SIMILARITY).
FT CAROHND 74 74 N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ SEQUENCE 164 AA; 19330 MW; 9EB86A81A9D5DC44 CRC64;

Query Match 51.7%; Score 62; DB 1; Length 164;
Best Local Similarity 21.9%; Pred. No. 0.057;
Matches 14; Conservative 4; Mismatches 2; Indels 44; Gaps 1;

Qy 1 CECRPRKQRTKPE-----KCD 16
Db 101 CECRPRKQARQENPCGSCERRKHLFVQDPQTCCKSCNTDSCKARQLEINERTCRCD 160

Qy 17 KPRR 20
Db 161 KPRR 164

RESULT 11
ODO2_YEAST STANDARD; PRT; 463 AA.
ID ODO2_YEAST
AC P19762;
DT 01-NOV-1990 (Rel. 16, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Dihydroliipoamide succinyltransferase component of 2-oxoglutarate
DE dehydrogenase complex, mitochondrial precursor (EC 2.3.1.61) (E2).
GN KGD2 OR YDR148C OR YD8358.05C.
OS Saccharomyces cerevisiae (Baker's yeast).
OC Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
OC Saccharomycetales; Saccharomycetaceae; Saccharomyces.
OX NCBI_TaxID=4932;
RN [1]
RP SEQUENCE FROM N.A.
RC MEDLINE=90318388; PubMed=2115121;
RA Repetto B., Izagoloff A.;
RT "Structure and regulation of KGD2, the structural gene for yeast
RT dihydroliipoyl transsuccinylase."
RL Mol. Cell. Biol. 10:4221-4232(1990).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=S288c / FY1678;
RX PubMed=9169867;
RA Jacq C., Alt-Moerbe J., Andre B., Arnold W., Bahr A., Ballesta J.P.G.,
RA Barques M., Baron L., Becker A., Bileau N., Bloecker H., Bligeon C.,
RA Boskovic J., Brandt P., Bruckner M., Buitrago M.J., Coster F.,
RA Delaveau T., del Rey F., Dujon B., Eide L.G., Garcia-Cantalejo J.M.,
RA Goffeau A., Gomez-Perez A., Granotier C., Hanemann V., Hannekin T.,
RA Hohlhel J.D., Jaeger W., Jimenez A., Joniaux J.-L., Kraemer C.,
RA Kuester H., Laamanen P., Legros Y., Louis E.J., Moeller-Rieker S.,
RA Monnet A., Moro M., Mueller-Auer S., Nussbaumer B., Paricio N.,
RA Paulin L., Perea J., Perez-Alonso M., Perez-Ortin J.E., Pohl T.M.,
RA Prydz H., Purnelle B., Rasmussen S.W., Remacha M., Revuelta J.L.,
RA Rieger M., Salom D., Saluz H.P., Salz J.E., Saren A.-M., Schaefer M.,
RA Schaefer M., Schmidt E.R., Schneider C., Scholler A., Schwarz S.,
RA Uristeaza J.A., Verhaesele P., Vissers S., Voet M., Volckaert G.,
RA Wagner G., Wambutt R., Wedler E., Wedler H., Wolf S., Harris D.E.,
RA Bowman S., Brown D., Churcher C.M., Connor R., Dedman K., Gentles S.,
RA Hamlin N., Hunt S., Jones U., McDonald S., Murphy L., Niblett D.,
RA Odell C., Oliver K., Rajandream M.A., Richards C., Shore L.,
RA Walsh S.V., Barrell B.G., Dietrich F.S., Milligan J.T., Allen E.,
RA Araujo R., Aviles E., Berne A., Carpenter J., Chen E., Cherry J.M.,
RA Chung E., Duncan M., Hunicke-Smith S., Hyman R.W., Komp C.,
RA Lahekari D., Lew H., Lin D., Mosedale D., Nakamura K., Namach A.,
RA Oetner P., Oh C., Petel F.X., Roberts D., Schramm S., Schroeder M.,
RA Shogren T., Shroff N., Winant A., Yelton M.A., Botsstein D.,
RA Davis R.W., Johnston M., Andrews S., Birkinan R., Cooper J., Ding H.,
RA Du Z., Favello A., Fulton L., Gattung S., Greco T., Hallsworth K.,
RA Hawkin J., Hillier L., Jier M., Johnson D., Johnston L., Kirsten J.,
RA Kucaba T., Langston Y., Latreille P., Le T., Merdis E., Meneses S.,
RA Miller N., Nman M., Pauley A., Peluso D., Rifkin L., Riles L.,
RA Tall A., Trevaaskis E., Vignati D., Wilcox L., Woldman P., Vaudin M.,
RA Wilson R., Waterston R., Albermann K., Han J., Heumann K., Kleine K.,
RA Mewes H.-W., Zollner A., Zaccaria P.;

```

RT "The nucleotide sequence of Saccharomyces cerevisiae chromosome IV.",  
 RL Nature 387:75-78(1997).  
 CC -1- FUNCTION: THE 2-OXOGUTARATE DEHYDROGENASE COMPLEX CATALYZES THE  
 CC OVERALL CONVERSION OF 2-OXOGUTARATE TO SUCCINYL-COA & CO(2). IT  
 CC CONTAINS MULTIPLE COPIES OF 3 ENZYMATIC COMPONENTS: 2-OXOGUTARATE  
 CC DEHYDROGENASE (E1), DIHYDROLIPOAMIDE SUCCINYLTRANSFERASE (E2) &  
 CC LIPAMIDE DEHYDROGENASE (E3).  
 CC -1- CATALYTIC ACTIVITY: Succinyl-CoA + dihydrolipoamide = CoA + S-  
 CC succinyl-dihydrolipoamide.  
 CC -1- COFACTOR: THE E2 COMPONENT CONTAINS ONE COVALENTLY-BOUND LIPOYL  
 CC COFACTOR.  
 CC -1- PATHWAY: Tricarboxylic acid cycle.  
 CC -1- SUBCELLULAR LOCATION: Mitochondrial.  
 CC -1- INDUCTION: TRANSCRIPTIONALLY REGULATED BY GLUCOSE AND ACTIVATED  
 CC BY THE HAP2 AND HAP3 PROTEINS.  
 CC -1- SIMILARITY: BELONGS TO THE 2-OXOACID DEHYDROGENASE FAMILY.  
 CC -----  
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 CC -----  
 CC EMBL: M34531; AAA34720.1; -;  
 CC EMBL: Z50046; CA93071.1; -;  
 CC PIR: S57975; XUBISD.  
 CC HSSP: P07016; 1E20.  
 CC DR SGD: S0002555; KGD2.  
 CC DR GO: GO:0005759; C:mitochondrial matrix; NAS.  
 CC DR InterPro: IPR001078; 2Oxoacid dh.  
 CC DR InterPro: IPR000089; Biotin\_lipoyl.  
 CC DR InterPro: IPR003016; Lipoyl.  
 CC DR InterPro: IPR006255; Sucb.  
 CC DR Pfam: PF00198; 2-oxoacid\_dh; 1.  
 CC DR Pfam: PF00364; biotin\_lipoyl; 1.  
 CC DR Prodom: PD00115; 2Oxoacid dh; 1.  
 CC DR TIGRfam: TIGR01347; sucb; 1.  
 CC DR PROSITE: PS00189; LIPOYL; 1.  
 CC KW Tricarboxylic acid cycle; Transferase; Acyltransferase; Lipoyl;  
 CC KM Mitochondrion; Transil peptide; Repeat.  
 CC KW TRANSIT ? 463  
 CC FT CHAIN 1  
 CC FT ? 463  
 CC FT  
 CC FT DOMAIN 185 209  
 CC FT BINDING 114 114  
 CC FT ACT SITE 435 435  
 CC FT ACT SITE 439 439  
 CC FT CONFLICT 170 208  
 CC FT  
 CC FT CONFLICT 441 445  
 CC FT CONFLICT 460 463  
 CC SQ SEQUENCE 463 AA; 50430 MW; C06FEHDE385A19 CRC64;  
 CC  
 CC Query Match 47.5%; Score 57; DB 1; Length 463;  
 CC Best Local Similarity 47.4%; Pred. No. 0.8;  
 CC Matches 9; Conservative 6; Mismatches 4; Indels 0; Gaps 0;  
 CC  
 CC 2 ECRPKKDRKRECKDKRR 20  
 CC DB 195 EAAPKKEVTEPKADDPKK 213  
 CC  
 CC RESULT 12  
 CC VEGA CHICK STANDARD; PRT; 216 AA.  
 CC AC P52582; Q91420;  
 CC DT 01-OCT-1996 (Rel. 34, Created)  
 CC DT 15-JUL-1998 (Rel. 36, Last sequence update)

DT 15-SBP-2003 (Rel. 42, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 DE permeability factor) (VPF).  
 GN VEGF OR VEGFA. (Chicken).  
 OS Gallus gallus (Chicken), and  
 OS Coturnix coturnix japonica (Japanese quail).  
 OS Coturnix coturnix japonica (Japanese quail).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;  
 OC Gallus.  
 OK NCBI\_Taxid=9031, 93934;  
 RN  
 RN (1)  
 RP SEQUENCE FROM N.A.  
 RP SPECIES=Chicken; TISSUE=Heart;  
 RA Takahashi T.;  
 RT "Chick embryonic ventricular myocytes VEGF";  
 RL Submitted (FEB-1998) to the EMBL/Genbank/DBJ database.  
 RN (2)  
 RP SEQUENCE FROM N.A. (ISOFORMS VEGF-190; VEGF-166 AND VEGF-146).  
 RP SPECIES=C.japonica; TISSUE=Embryo;  
 RX MEDLINE=96005007; PubMed=7556923;  
 RA Flame I., von Reutern M., Drexler H.C., Syed-Ali S., Rissau W.;  
 RT "Overexpression of vascular endothelial growth factor in the avian  
 RT embryo induces hypervascularization and increased vascular  
 RT permeability without alterations of embryonic pattern formation.";  
 RL Dev. Biol. 171:399-414(1995).  
 RN (3)  
 RP SEQUENCE OF 60-187 FROM N.A. (ISOFORMS VEGF-190 AND VEGF-166).  
 RP SPECIES=C.japonica;  
 RX MEDLINE=95301109; PubMed=7781909;  
 RA Flame I., Breier G., Risau W.;  
 RT "Vascular endothelial growth factor (VEGF) and VEGF receptor 2  
 RT (flk-1) are expressed during vasculogenesis and vascular  
 RT differentiation in the quail embryo";  
 RL Dev. Biol. 169:699-712(1995).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin (by similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (by similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event-Alternative splicing. Named isoforms=3;  
 CC Comment-Additional isoforms seem to exist;  
 CC Name=VEGF-190;  
 CC IsoId=P52582-1; Sequence=Displayed;  
 CC Name=VEGF-166;  
 CC IsoId=P52582-2; Sequence=VSP\_004633, VSP\_004634;  
 CC Note=Has been shown to exist only in quail so far;  
 CC Name=VEGF-146;  
 CC IsoId=P52582-3; Sequence=VSP\_004635, VSP\_004636;  
 CC Note=Has been shown to exist only in quail so far;  
 CC -1- TISSUE SPECIFICITY: Abundantly and equally expressed in heart and  
 CC liver. In kidney glomeruli, brain and yolk sac, VEGF-166 is 5- to  
 CC 10-times more abundant than VEGF-190.  
 CC -1- DEVELOPMENTAL STAGE: VEGF-166 is expressed early at day 1 and is  
 CC upregulated during gastrulation. Expression of VEGF-190 is detectable  
 CC only from day 2.  
 CC -1- DOMAIN: VEGF-190 contains a basic insert which acts as a cell  
 CC retention signal.  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 CC EMBL: AB011078; AAA24925.1; -;  
 CC EMBL: S79680; AAA35371.1; -;

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DR HSP; P15692; 1VGH.
DR Interpro: IPR000072; PD_growth_factor.
DR Pfam: PF00341; PDGF; 1.
DR Prodom: PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS00278; PDGF_2; 1.
DR Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KM Heparin-binding; Alternative splicing; Multigene family.
FT SIGNAL 1 26
FT CHAIN 27 216
FT DISULFID 52 94
FT DISULFID 83 128
FT DISULFID 87 130
FT DISULFID 77 77
FT DISULFID 86 86
FT CARBOHYD 101 101
FT VARSPLIC 142 142
FT VARSPLIC 143 166
FT VARSPLIC 166 166
FT VARSPLIC 167 210
FT VARSPLIC 167 210
FT SEQUENCE 216 AA; 25203 MW; 82E669C2F6FC6DA7 CRC64;

Query Match 46.2%; Score 55.5; DB 1; Length 216;
Best Local Similarity 61.1%; Pred. No. 0.6;
Matches 11; Conservative 2; Mismatches 4; Indels 1; Gaps 1;

Qy 1 CECRPKD-RTKPKCKDK 17
Db 128 CDCRPKDVKNCKKSK 145

RESULT 13
VEGB BOVIN STANDARD; PRT; 207 AA.
AC Q9X549; Q9GLX2; Q9X548;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor B precursor (VEGF-B) (VEGF related
factor) (VRF).
GN VEGFB OR VRF.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Heart;
RA Liu X., Yonekura H., Yamagishi S., Yamamoto Y., Yamamoto H.;
RT "Structure and expression of bovine VEGF family.";
RU Submitted (May-1997) to the EMBL/Genbank/DBJ databases.
RN [2]
RP SEQUENCE OF 38-104 FROM N.A.
RC TISSUE=Heart;
RA Mandirica S.J., Pepper M.S.;
RT Submitted (Oct-1998) to the EMBL/Genbank/DBJ databases.
RN [3]
RP FUNCTION: Growth factor for endothelial cells. VEGF-B167 binds
heparin and neuropilin-1 whereas the binding to neuropilin-1 of
VEGF-B186 is regulated by proteolysis (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Can also form heterodimer
with vegf (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
to the extracellular matrix unless released by heparin (By
similarity).
CC -1- ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=2;
CC Comment=Additional isoforms seem to exist;

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CC Name=VEGF-B186;
CC IsoId=Q9X549-1; Sequence=Displayed;
CC Name=VEGF-B167;
CC IsoId=Q9X549-2; Sequence=VSP_004637, VSP_004638;
CC -1- PTM: VEGF-B186 is O-glycosylated (By similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC or send an email to license@sib-sib.ch).
CC -----
DR EMBL; AB004274; BAA77686.1; -
DR EMBL; AB004273; BAA77685.1; -
DR EMBL; AF099134; AAG29746.1; -
DR HSP; P15692; 1VGP.
DR Interpro: IPR002400; GF_cycknot.
DR Interpro: IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR PRINTS; PR00438; GFCYSKNOT.
DR Prodom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS00278; PDGF_2; 1.
DR Mitogen; Growth factor; Glycoprotein; Signal; Heparin-binding;
KM Alternative splicing; Multigene family.
FT SIGNAL 1 21
FT CHAIN 22 207
FT DISULFID 47 89
FT DISULFID 78 122
FT DISULFID 82 124
FT DISULFID 72 72
FT DISULFID 81 81
FT VARSPLIC 137 188
FT VARSPLIC 137 188
FT VARSPLIC 189 207
FT VARSPLIC 189 207
FT SEQUENCE 207 AA; 21655 MW; 646C82D1B817782 CRC64;

Query Match 45.8%; Score 55; DB 1; Length 207;
Best Local Similarity 50.0%; Pred. No. 0.67;
Matches 10; Conservative 2; Mismatches 6; Indels 2; Gaps 1;

Qy 1 CECRPK--DRTKPKCKDKP 18
Db 122 CECRPKRESAVKPDRASTP 141

RESULT 14
LMB1 HUMAN STANDARD; PRT; 1786 AA.
AC P07942;
DT 01-AUG-1988 (Rel. 08, Created)
DT 01-AUG-1988 (Rel. 08, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Laminin beta-1 chain precursor (Laminin B1 chain).
GN LAMB1.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RC MEDLINE=90368768; PubMed=1975589;
RX Vuolteenaho R., Chow L.T., Tryggvason K.;
RA "Structure of the human laminin B1 chain gene.";
RT J. Biol. Chem. 265:15611-15616(1990).

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[2]  
 RN SEQUENCE FROM N.A.  
 RX MEDLINE=87280097; PubMed=3611077;  
 RA Plikaitienė T., Eddy R., Fukushima Y., Byers M., Shows T.,  
 RA Pilištienė T., Saraste M., Tryggvason K.;  
 RT "Human laminin B1 chain. A multidomain protein with gene (LAMB1)  
 RT locus in the q22 region of chromosome 7.";  
 RL J. Biol. Chem. 262:10454-10462(1987).  
 RN [3]  
 RP SEQUENCE OF 1276-1709 FROM N.A.  
 RX MEDLINE=88021029; PubMed=3661559;  
 RA Jaye M., Modi W.S., Ricca G.A., Mudd R., Chiu I.M., O'Brien S.J.,  
 RA Drohan W.N.;  
 RT "Isolation of a cDNA clone for the human laminin-B1 chain and its  
 RT gene localization.";  
 RL Am. J. Hum. Genet. 41:605-615(1987).  
 CC -1- FUNCTION: Binding to cells via a high affinity receptor, laminin  
 CC is thought to mediate the attachment, migration, and organization  
 CC of cells into tissues during embryonic development by interacting  
 CC with other extracellular matrix components.  
 CC -1- SUBUNIT: Laminin is a complex glycoprotein, consisting of three  
 CC different polypeptide chains (alpha, beta, gamma), which are bound  
 CC to each other by disulfide bonds into a cross-shaped molecule  
 CC comprising one long and three short arms with globules at each  
 CC end.  
 CC THE BETA-1 CHAIN IS A SUBUNIT OF LAMININ-1 (EHS LAMININ), LAMININ-  
 CC 2 (MEROSIN), AND LAMININ-6 (K-LAMININ).  
 CC -1- SUBCELLULAR LOCATION: Extracellular.  
 CC -1- TISSUE SPECIFICITY: FOUND IN THE BASEMENT MEMBRANES (MAJOR  
 CC COMPONENT).  
 CC -1- DOMAIN: THE ALPHA-HELICAL DOMAINS I AND II ARE THOUGHT TO INTERACT  
 CC WITH OTHER LAMININ CHAINS TO FORM A COILED COIL STRUCTURE.  
 CC -1- DOMAIN: DOMAINS VI AND IV ARE GLOBULAR.  
 CC -1- SIMILARITY: Contains 1 laminin N-terminal domain.  
 CC -1- SIMILARITY: Contains 13 laminin EGF-like domains.  
 CC -1- SIMILARITY: Contains 1 laminin IV domain.  
 CC -----  
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 CC -----  
 DR EMBL; M61951; AAA59486.1; -.  
 DR EMBL; M58147; AAA59486.1; JOINED.  
 DR EMBL; M61917; AAA59486.1; JOINED.  
 DR EMBL; M61918; AAA59486.1; JOINED.  
 DR EMBL; M61921; AAA59486.1; JOINED.  
 DR EMBL; M61922; AAA59486.1; JOINED.  
 DR EMBL; M61923; AAA59486.1; JOINED.  
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 DR EMBL; M61925; AAA59486.1; JOINED.  
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 DR EMBL; M61929; AAA59486.1; JOINED.  
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 DR EMBL; M61940; AAA59486.1; JOINED.  
 DR EMBL; M61941; AAA59486.1; JOINED.  
 DR EMBL; M61942; AAA59486.1; JOINED.  
 DR EMBL; M61943; AAA59486.1; JOINED.  
 DR EMBL; M61944; AAA59486.1; JOINED.  
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DR	EMBL	M61946	AAAS9486.1	JOINED.	
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DR	EMBL	M20206	AAAS9487.1	-	
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DR	Genew	HGNC:6486	LAMB1.		
DR	InterPro	IPRO06209	EGF like.		
DR	InterPro	IPRO02049	Laminin_EGF.		
DR	InterPro	IPRO01866	Lamnt.		
DR	Pfam	PF00053	Laminin_EGF; 13.		
DR	Pfam	PF00055	Laminin_Nterm; 1.		
DR	PRINTS	PRO0011	EGFLAMININ		
DR	SMART	SMO0180	EGF Lam; 12.		
DR	SMART	SMO0136	Lamnt; 1.		
DR	PROSITE	PSO0022	EGF_1; 9.		
DR	PROSITE	PSO1186	EGF_2; 2.		
DR	PROSITE	PSO1246	LAMININ TYPE EGF; 11.		
KW	GlycoProtein		Basement membrane; Extracellular matrix; Coiled coil;		
KW	Laminin		EGF-like domain; Cell adhesion; Repeat; Signal; Polymorphism		
FT	SIGNAL	1	21		
FT	CHAIN	22	1786	LAMININ BETA-1 CHAIN.	
FT	DOMAIN	22	270	LAMININ N-TERMINAL (DOMAIN VI).	
FT	DOMAIN	271	334	LAMININ EGF-LIKE 1.	
FT	DOMAIN	335	397	LAMININ EGF-LIKE 2.	
FT	DOMAIN	398	457	LAMININ EGF-LIKE 3.	
FT	DOMAIN	458	509	LAMININ EGF-LIKE 4.	
FT	DOMAIN	510	540	LAMININ EGF-LIKE 5 (INCOMPLETE).	
FT	DOMAIN	541	771	LAMININ DOMAIN IV.	
FT	DOMAIN	773	820	LAMININ EGF-LIKE 6.	
FT	DOMAIN	821	866	LAMININ EGF-LIKE 7.	
FT	DOMAIN	867	916	LAMININ EGF-LIKE 8.	
FT	DOMAIN	917	975	LAMININ EGF-LIKE 9.	
FT	DOMAIN	976	1027	LAMININ EGF-LIKE 10.	
FT	DOMAIN	1028	1083	LAMININ EGF-LIKE 11.	
FT	DOMAIN	1084	1131	LAMININ EGF-LIKE 12.	

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FT DOMAIN 1132 1178 LAMININ EGF-LIKE 13.
FT DOMAIN 1179 1397 DOMAIN II.
FT DOMAIN 1398 1430 DOMAIN ALPHA.
FT DOMAIN 1431 1786 DOMAIN I.
FT DOMAIN 1216 1315 COILED COIL (POTENTIAL).
FT DOMAIN 1353 1388 COILED COIL (POTENTIAL).
FT DOMAIN 1442 1781 COILED COIL (POTENTIAL).
FT DISULFID 271 280 BY SIMILARITY.
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FT DISULFID 335 344 BY SIMILARITY.
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FT DISULFID 400 426 BY SIMILARITY.
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FT DISULFID 440 455 BY SIMILARITY.
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FT DISULFID 821 833 BY SIMILARITY.
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FT DISULFID 886 895 BY SIMILARITY.
FT DISULFID 898 914 BY SIMILARITY.
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FT DISULFID 919 944 BY SIMILARITY.

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Query Match Best Local Similarity 45.8%; Score 55; DB 1; Length 1766;  
Matches 9; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

OY 1 CECRRPKDRTKEPKCDK 17  
DB 976 CQCHNNIDTTPDEACDK 992

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RESULT 15
LMB1_MOUSE STANDARD; PRT: 1786 AA.
ID AC P02469;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-JUL-1989 (Rel. 11, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Laminin beta-1 chain precursor (Laminin B1 chain).
GN LAMB1-1 OR LAMB-1.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OK NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=87147212; PubMed=3493487;
RA Sasaki M., Kato S., Kohno K., Martin G.R., Yamada Y.;
RT "Sequence of the cDNA encoding the laminin B1 chain reveals a
RT multidomain protein containing cysteine-rich repeats";
RL Proc. Natl. Acad. Sci. U.S.A. 84:935-939(1987).
RN [2]
RP SEQUENCE OF 1292-1786 FROM N.A.
RX MEDLINE=85051302; PubMed=6209134;
RA Barlow D.P., Green N.M., Kurkinen M., Hogan B.L.M.;
RT "Sequencing of laminin B chain cDNAs reveals C-terminal regions of
RT coiled-coil alpha-helix.";

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RL EMB0 J. 3:2355-2362(1984).
RN [3]
RP SEQUENCE OF 165-172, 539-547 AND 712-719.
RC STRAIN=BAIB/C; TISSUE=Endothelial cells;
RX MEDLINE=97363207; PubMed=9219532;
RA Frieser W., Noecker H., Pausch F., Roeder C., Hahn A., Deutzmann R.,
RA Sorokin L.M.;
RT "Cloning of the mouse laminin alpha 4 cDNA. Expression in a subset of
RT endothelium.";
RT Eur. J. Biochem. 246:727-735(1997).
CC -1- FUNCTION: Binding to cells via a high affinity receptor. Laminin
CC is thought to mediate the attachment, migration, and organization
CC of cells into tissues during embryonic development by interacting
CC with other extracellular matrix components.
CC -1- SUBUNIT: Laminin is a complex glycoprotein, consisting of three
CC different polypeptide chains (alpha, beta, gamma), which are bound
CC to each other by disulfide bonds into a cross-shaped molecule
CC comprising one long and three short arms with globules at each
CC end.
CC THE BETA-1 CHAIN IS A SUBUNIT OF LAMININ-1 (EHS LAMININ), LAMININ-
CC 2 (MEROSIN), AND LAMININ-6 (K-LAMININ).
CC -1- SUBCELLULAR LOCATION: Extracellular.
CC -1- TISSUE SPECIFICITY: FOUND IN THE BASEMENT MEMBRANES (MAJOR
CC COMPONENT).
CC -1- SIMILARITY: Contains 1 laminin N-terminal domain.
CC -1- SIMILARITY: Contains 13 laminin EGF-like domains.
CC -1- SIMILARITY: Contains 1 laminin IV domain.
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CC or send an email to license@sib-sib.ch).
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CC EMBL: M15525; AAA39407.1; ALT__INIT.
CC EMBL: X05212; CAA28839.1; -.
CC PIR: A26413; MMSBL.
CC HSSP: P02468; IXLO.
CC MGD: MGI:96743; Lamb1-1.
CC InterPro: IPR006209; EGF-like.
CC InterPro: IPR002049; Laminin_EGF.
CC InterPro: IPR001886; LamNT.
CC Pfam: PF00053; laminin_EGF_13.
CC Pfam: PF00055; laminin_Nterm; 1.
CC PRINTS: PR00011; EGF_LAMININ.
CC SMART: SM00180; EGF_Lam; 11.
CC SMART: SM00136; LamNT; 1.
CC PROSITE: PS00022; EGF_1; 2.
CC PROSITE: PS01186; EGF_2; 2.
CC PROSITE: PS01248; LAMININ_TYPE_EGF; 11.
CC Glycoprotein; Basement membrane; Extracellular matrix; Coiled coil;
CC Laminin EGF-like domain; Cell adhesion; Repeat; Signal.
CC KW Laminin EGF-like domain; Cell adhesion; Repeat; Signal.
CC FT SIGNAL 1 21
CC FT CHAIN 22 1786 LAMININ BETA-1 CHAIN.
CC FT DOMAIN 22 270 LAMININ N-TERMINAL (DOMAIN VI).
CC FT DOMAIN 271 334 LAMININ EGF-LIKE 1.
CC FT DOMAIN 335 397 LAMININ EGF-LIKE 2.
CC FT DOMAIN 398 457 LAMININ EGF-LIKE 3.
CC FT DOMAIN 458 509 LAMININ EGF-LIKE 4.
CC FT DOMAIN 510 540 LAMININ EGF-LIKE 5 (INCOMPLETE).
CC FT DOMAIN 541 772 LAMININ DOMAIN IV.
CC FT DOMAIN 773 820 LAMININ EGF-LIKE 6.
CC FT DOMAIN 821 866 LAMININ EGF-LIKE 7.
CC FT DOMAIN 867 916 LAMININ EGF-LIKE 8.
CC FT DOMAIN 917 975 LAMININ EGF-LIKE 9.
CC FT DOMAIN 976 1027 LAMININ EGF-LIKE 10.
CC FT DOMAIN 1028 1083 LAMININ EGF-LIKE 11.
CC FT DOMAIN 1084 1131 LAMININ EGF-LIKE 12.
CC FT DOMAIN 1132 1178 LAMININ EGF-LIKE 13.
CC FT DOMAIN 1179 1397 DOMAIN II.
CC FT DOMAIN 1398 1430 DOMAIN ALPHA.

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FT	DOMAIN	1431	1786	DOMAIN 1.
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FT	DISULFID	1012	1025	BY SIMILARITY.
FT	DISULFID	1084	1096	BY SIMILARITY.
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FT	DISULFID	1153	1162	BY SIMILARITY.
FT	DISULFID	1165	1176	BY SIMILARITY.
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FT	DISULFID	1182	1182	INTERCHAIN (PROBABLE).
FT	DISULFID	1785	1785	INTERCHAIN (PROBABLE).
FT	CARBOHYD	120	120	N-LINKED (GLCNAC. . .) (POTENTIAL).
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FT	CARBOHYD	519	519	N-LINKED (GLCNAC. . .) (POTENTIAL).
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FT	CARBOHYD	1041	1041	N-LINKED (GLCNAC. . .) (POTENTIAL).
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FT	CARBOHYD	1343	1343	N-LINKED (GLCNAC. . .) (POTENTIAL).
FT	CARBOHYD	1487	1487	N-LINKED (GLCNAC. . .) (POTENTIAL).
FT	CARBOHYD	1533	1533	N-LINKED (GLCNAC. . .) (POTENTIAL).
FT	CARBOHYD	1542	1542	N-LINKED (GLCNAC. . .) (POTENTIAL).
FT	CARBOHYD	1643	1643	N-LINKED (GLCNAC. . .) (POTENTIAL).
FT	CONFLICT	1531	1534	SGNA -> MEMP (IN REF. 2).
FT	CONFLICT	1749	1749	D -> N (IN REF. 2).
SO	SEQUENCE	1786	AA; 196904	MM; 846671B7BF41A474 CRC64;

Db 976 COCHNIDTTPKCDK 992

Search completed: January 30, 2004, 11:41:03  
Job time : 4.61538 secsQuery Match Score 55; DB 1; Length 1786;  
Best Local Similarity 52.9%;  
Matches 9; Conservative 1; Mismatches 7; Indels 0; Gaps 0;  
QY 1 CECRPKDKRTKPEKCDK 17





GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:33:38 ; Search time 20.7179 Seconds  
(without alignments)  
249.110 Million cell updates/sec

Title: US-09-266-543-4  
Perfect score: 120  
Sequence: 1 CECRPKDKRTKREKCDKPRR 20

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 830525 seqs, 258052604 residues  
Total number of hits satisfying chosen parameters: 830525

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

SPTREMBL\_23:\*  
1: sp\_archaea:\*  
2: sp\_bacteria:\*  
3: sp\_fungi:\*  
4: sp\_human:\*  
5: sp\_invertebrate:\*  
6: sp\_mammal:\*  
7: sp\_mhc:\*  
8: sp\_organelle:\*  
9: sp\_phage:\*  
10: sp\_plant:\*  
11: sp\_rodent:\*  
12: sp\_virus:\*  
13: sp\_vertebrate:\*  
14: sp\_unclassified:\*  
15: sp\_virus:\*  
16: sp\_bacteria:\*  
17: sp\_archaea:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	101	84.2	65	Q8M1N0	Q8M1N0 capra hircu
2	101	84.2	118	Q9M2B1	Q9M2B1 ovis aries
3	86.5	72.1	148	Q42571	Q42571 xenopus lae
4	85	70.8	190	Q912B1	Q912B1 ratnus norv
5	83	69.2	89	Q91Y66	Q91Y66 ratnus norv
6	83	69.2	102	Q63672	Q63672 ratnus norv
7	81	67.5	65	Q91Y68	Q91Y68 ratnus norv
8	72	60.0	142	Q9ERL6	Q9ERL6 mesocricetu
9	72	60.0	190	Q9OX39	Q9OX39 spalax leuc
10	71.5	59.6	144	Q73822	Q73822 brachydanio
11	69	57.5	191	Q96182	Q96182 homo sapien
12	68	57.5	191	Q95N55	Q95N55 macaca fasc
13	68	56.7	189	Q95L04	Q95L04 felis silve
14	67	55.8	102	Q9XT61	Q9XT61 macaca fasc
15	67	55.8	127	Q8MWO4	Q8MWO4 sus scrofa
16	66	55.0	109	Q8M1N1	Q8M1N1 capra hircu

17	66	55.0	190	Q76643	Q76643 ovis aries
18	65	54.2	124	Q9GK00	Q9GK00 callithrix
19	65	54.2	124	Q8SP29	Q8SP29 sus scrofa
20	65	54.2	184	Q8HY70	Q8HY70 mustela vis
21	65	54.2	191	Q96KJ0	Q96KJ0 homo sapien
22	64	53.3	113	Q8M120	Q8M120 ovis aries
23	64	53.3	131	Q8M786	Q8M786 capreolus c
24	62	51.7	123	Q9N1S1	Q9N1S1 capreolus c
25	62	51.7	128	Q8SP15	Q8SP15 equus caball
26	60	50.0	1028	Q9UL10	Q9UL10 mus musculu
27	60	50.0	1048	Q8MWS	Q8MWS gallus gall
28	59	49.2	78	Q9N1S2	Q9N1S2 capreolus c
29	59	49.2	1036	Q9NZV1	Q9NZV1 homo sapien
30	57	47.5	108	Q8HY75	Q8HY75 ovis aries
31	55	45.8	911	Q9CRX6	Q9CRX6 mus musculu
32	55	45.8	984	Q8K271	Q8K271 mus musculu
33	55	45.8	1086	Q8TAS6	Q8TAS6 homo sapien
34	53.5	44.6	279	Q9VH54	Q9VH54 dirosophila
35	53	44.2	17352	Q95YM2	Q95YM2 procamburus
36	52.5	43.8	188	Q8TEV2	Q8TEV2 homo sapien
37	52	43.3	1069	Q9BPS2	Q9BPS2 bombyx mori
38	52	43.3	1792	Q57484	Q57484 gallus gall
39	51	42.5	67	Q23779	Q23779 chironomus
40	51	42.5	143	Q23765	Q23765 chironomus
41	51	42.5	515	Q9FN68	Q9FN68 arabidopsis
42	50.5	42.1	77	P79199	P79199 ovis aries
43	50.5	42.1	194	Q42572	Q42572 xenopus lae
44	50.5	42.1	1164	Q8PT00	Q8PT00 methanosaac
45	50	41.7	120	Q8MVG3	Q8MVG3 ixodes scap

## ALIGNMENTS

RESULT 1  
Q8M1N0 PRELIMINARY; PRT; 65 AA.  
AC Q8M1N0;  
DT 01-OCT-2002 (TREMBlrel. 22, Last sequence update)  
DT 01-OCT-2002 (TREMBlrel. 22, Last sequence update)  
DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
DE Vascular endothelial growth factor 121 (Fragment).  
OS Capra hircus (Goat).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
OC Bovidae; Caprinae; Capra.  
OX NCB1\_TaxID=9925;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Corpus luteum;  
RA Kawate N., Teuji M., Tamada H., Inaba T., Sawada T.;  
RT "Changes of Messenger RNAs Encoding Vascular Endothelial Growth Factor  
RT and Its Receptors during the Development and Maintenance of Caprine  
RT Corpora lutea."  
RL Submitted (May-2002) to the EMBL/GenBank/DBJ databases.  
DR EMBL, AY114353; AAM76574.1; -;  
DR InterPro; IPR000072; PD\_growth\_factor.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PD\_growth\_factor; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00278; PDGF\_2; 1.  
FT NON TER  
SQ  
SEQUENCE 65 AA; 7562 MW; BA3B5384364B05E3 CRC64;  
Query Match 84.2%; Score 101; DB 6; Length 65;  
Best Local Similarity 80.0%; Pred. No. 6.4e-08;  
Matches 16; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKREKCDKPRR 20  
|||||:|||||  
Db 46 CECRPKDKRTKREKCDKPRR 65

## RESULT 2

Q9MZB1 PRELIMINARY; PRT; 118 AA.  
 AC Q9MZB1  
 DT 01-OCT-2000 (TrEMBLrel. 15, Created)  
 DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)  
 DT 01-MAR-2003 (TrEMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 GN VEGF.  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Caprinae; Ovis.  
 CX NCB1\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Placental artery endothelium;  
 RA Zheng J., Tsai S.C., Magness R.R.;  
 RT "Growth factor expression in ovine fetal placental artery endothelial  
 cells";  
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF250375; AAF75258.1; -.  
 DR HSSP; P49763; 1F2V.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 DR NON\_TER 1  
 SQ SEQUENCE 118 AA; 13931 MW; 757DC5A56378A6 CRC64;

Query Match 84.2%; Score 101; DB 6; Length 118;  
 Best Local Similarity 80.0%; Pred. No. 1.1e-07;  
 Matches 16; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPRR 20  
 DB 99 CECRPKDKARQEKCDKPRR 118

## RESULT 3

Q42571 PRELIMINARY; PRT; 148 AA.  
 AC Q42571  
 DT 01-JAN-1998 (TrEMBLrel. 05, Created)  
 DT 01-JAN-1998 (TrEMBLrel. 05, Last sequence update)  
 DT 01-MAR-2003 (TrEMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor 122.  
 GN VEGF.  
 OS Xenopus laevis (African clawed frog).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;  
 OC Xenopodinae; Xenopus.  
 CX NCB1\_TaxID=8355;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC Clever O., Tonissen K.F., Saha M.S., Krieg P.A.;  
 RT "Neovascularization of the Xenopus embryo";  
 RL Dev. Dyn. 0:0-0(1997).  
 DR EMBL; AF008593; AAB63679.1; -.  
 DR HSSP; P49763; 1F2V.  
 DR InterPro; IPR002400; GF\_cyknoc.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR PRINTS; PR00438; GFCYSKNOT.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 DR SEQUENCE 148 AA; 17234 MW; 4AD15CA2P8B1E95 CRC64;

Query Match 72.1%; Score 86.5; DB 13; Length 148;

Best Local Similarity 71.4%; Pred. No. 2e-05;  
 Matches 15; Conservative 4; Mismatches 1; Indels 1; Gaps 1;

QY 1 CECRPKDKRTKPEKCDKPRR 20  
 DB 128 CECRPKDKVSKQEKCDKPRR 148

## RESULT 4

Q91ZE1 PRELIMINARY; PRT; 190 AA.  
 AC Q91ZE1  
 DT 01-DEC-2001 (TrEMBLrel. 19, Created)  
 DT 01-DEC-2001 (TrEMBLrel. 19, Last sequence update)  
 DT 01-MAR-2003 (TrEMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor.  
 GN VEGF.  
 OS Rattus norvegicus (Rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.  
 CX NCB1\_TaxID=10116;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=Sprague-Dawley;  
 RA Marion S., Lee T.-C.;  
 RT "Cloning of multiple VEGF splice variants from hypoxic neonatal rat  
 cardiomyocytes";  
 RL Submitted (APR-2001) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY033506; AAL07526.1; -.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 DR SEQUENCE 190 AA; 22396 MW; 589374010441F377 CRC64;

Query Match 70.8%; Score 85; DB 11; Length 190;  
 Best Local Similarity 29.7%; Pred. No. 4.2e-05;  
 Matches 19; Conservative 1; Mismatches 0; Indels 44; Gaps 1;

QY 1 CECRPKDKRTKPEKCDKPRR 16  
 DB 127 CECRPKDKRTKPEKCDKPRR 166  
 QY 17 KPRR 20  
 DB 187 KPRR 190

## RESULT 5

Q91Y66 PRELIMINARY; PRT; 89 AA.  
 AC Q91Y66  
 DT 01-DEC-2001 (TrEMBLrel. 19, Created)  
 DT 01-DEC-2001 (TrEMBLrel. 19, Last sequence update)  
 DT 01-MAR-2002 (TrEMBLrel. 20, Last annotation update)  
 DE VEGF188 protein (Fragment).  
 OS Rattus norvegicus (Rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.  
 CX NCB1\_TaxID=10116;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Heart;  
 RA Biot O.J.G., Bigard X.A., van Cuyck-Gandre H.;  
 RT "Identification by sequencing of VEGF164 mRNA transcript in rat  
 heart";  
 RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF261751; AAK49408.1; -.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR NON\_TER 1

[illegible]

RP	SEQUENCE FROM N.A.
RC	TISSUE=Heart;
RA	Biot O.J.G., Bigard X.A., van Cuyck-Gandre H.;
RT	"Identification by sequencing of VEGF164 mRNA transcript in rat heart";
RL	Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
RN	[2]
RP	SEQUENCE FROM N.A.
RC	TISSUE=Heart;
RA	Biot O.J.G., Simler N., van Cuyck-Gandre H., Bigard X.A.;
RT	"VEGF gene expression in heart of rats exposed to hypobaric hypoxia,"
RL	Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR	EMBL; AF260425; AAK49386.1; -
DR	InterPro; IPR00072; PD_growth_factor.
FT	Pfam; PF00341; PDGF_1.
FT	NON TER
FT	NON TER
FT	NON TER
SQ	SEQUENCE 65 AA; 7690 MW; 76B60P2AFB83D31 CRC64;
Cy	Query Match 67.5%; Score 81; DB 11; Length 65;
	Best Local Similarity 62.5%; Pred. No. 6.3e-05;
Db	Matches 15; Conservative 2; Mismatches 3; Indels 4; Gaps 1
	1 CECPKXDKRTPEK----CDKRR 20
	16 CECPKXDKRTPEKHCEPCSEERRK 39
ID	O9ERL6 PRELIMINARY; PRT; 142 AA.
AC	O9ERL6;
DT	01-MAR-2001 (TREMBLrel. 16; Created)
DT	01-MAR-2001 (TREMBLrel. 16; Last sequence update)
DT	01-MAR-2003 (TREMBLrel. 23; Last annotation update)
DE	Vascular endothelial growth factor VEGF (Fragment).
OS	Mesocricetus auratus (Golden hamster).
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
CC	Mesocricetus.
OX	NCBI_TaxID=10036;
RN	[1]
RP	SEQUENCE FROM N.A.
RA	Ramesh G., Kondiah P., Seehagiri P.B.;
RT	"Regulation of expression of transforming growth factor-beta's by steroid hormone in the hamster uterus";
RL	Submitted (AUG-2000) to the EMBL/GenBank/DBJ databases.
DR	EMBL; AF287627; AAC16241.1; -
DR	HSPV; P49763; lFZV.
DR	InterPro; IPR00072; PD_growth_factor.
DR	Pfam; PF00341; PDGF_1.
DR	Prodrom; PP001629; PD_growth_factor; 1.
DR	SMART; SMO0141; PDGF_1.
DR	PROSITE; PS00249; PDGF_1; 1.
DR	PROSITE; PS50278; PDGF_2; 1.
FT	NON TER
FT	NON TER
FT	NON TER
SQ	SEQUENCE 142 AA; 16621 MW; P7DA16D24BAE99E CRC64;
Cy	Query Match 60.0%; Score 72; DB 11; Length 142;
	Best Local Similarity 58.3%; Pred. No. 0.0029;
Db	Matches 14; Conservative 2; Mismatches 4; Indels 4; Gaps 1;
	1 CECPKXDKRTPEK----CDKRR 20
	83 CECPKXDKRTPEKHCEPCSEERRK 106
ID	O9QX39 PRELIMINARY; PRT; 190 AA.
AC	O9QX39;
DT	01-MAY-2000 (TREMBLrel. 13; Created)

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DT 01-MAY-2000 (TREMBlrel. 13, last sequence update)
DT 01-MAR-2003 (TREMBlrel. 23, last annotation update)
DE Vascular endothelial growth factor.
GN VEGF.
OS Spalax leucodon ehrenbergi (Ehrenberg's mole rat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Spalacinae;
OC Nannospalax.
OX NCBI_TaxId=30637;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=99313148; PubMed=10386577;
RA Avivi A., Resnick M.B., Nevo E., Joel A., Levy A.P.;
RT "Adaptive hypoxic tolerance in the subterranean mole rat Spalax
RT ehrenbergi: the role of vascular endothelial growth factor.";
RL PubMed 452:133-140(1999).
DR EMBL, AF186236; AAD56245.1; -.
DR HSSP; P49763; 1F2V.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
SQ SEQUENCE 190 AA; 22488 MW; 2228383BC6F0BFE CRC64;

Query Match
Best Local Similarity 60.0%; Score 72; DB 11; Length 190;
Matches 17; Conservative 2; Mismatches 1; Indels 44; Gaps 1;

Qy 1 CECRPKQRTKPE-----KCD 16
Db 127 CECRPKQRTKPEPCSESRKRLFVDPQTCCKSCNTDSRCKARQLEINERTCSD 186
Oy 17 KPRR 20
Db 187 KPRR 190

RESULT 10
ID 073822 PRELIMINARY; PRT; 144 AA.
AC 073822;
DT 01-AUG-1998 (TREMBlrel. 07, Created)
DT 01-AUG-1998 (TREMBlrel. 07, last sequence update)
DT 01-MAR-2003 (TREMBlrel. 23, last annotation update)
DE Vascular endothelial growth factor 121 isoform.
GN VEGF.
OS Brachydanio rerio (Zebrafish) (Danio rerio).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC Cyprinidae; Danio.
OX NCBI_TaxId=7955;
RN [1]
RP SEQUENCE FROM N.A.
RA Liang D., Ge R.;
RT "Vascular endothelial growth factor 121 isoform from zebrafish, Danio
RT rerio.";
RL Submitted (APR-1998) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF059661; AAC14713.1; -.
DR HSSP; P49763; 1F2V.
DR ZFIN; ZDB-GENE-990415-273; vegf.
DR InterPro; IPR002400; GF_cycknot.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR PRINTS; PR00438; GFCYSKNOT.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
SQ SEQUENCE 144 AA; 16479 MW; 303B6A7407AA0832 CRC64;

Query Match
Score 59.6%; Score 71.5; DB 13; Length 144;

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Best Local Similarity 60.0%; Pred. No. 0.0034;
Matches 12; Conservative 4; Mismatches 3; Indels 1; Gaps 1;

Qy 1 CECRPKQD-RTKPEKCKPR 19
Db 125 CECRPKAEVAKKRCERPR 144

RESULT 11
ID 096182 PRELIMINARY; PRT; 191 AA.
AC 096182;
DT 01-DEC-2001 (TREMBlrel. 19, Created)
DT 01-DEC-2001 (TREMBlrel. 19, last sequence update)
DT 01-OCT-2002 (TREMBlrel. 22, last annotation update)
DE Vascular endothelial growth factor.
GN VEGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
OX NCBI_TaxId=9606;
RN [1]
RP SEQUENCE FROM N.A.
RA Liu J., Peng X., Yuan J., Qiang B.;
RT "Cloning of vascular endothelial growth factor (VEGF) cDNA.";
RL Submitted (JUL-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY047581; AAK95847.1; -.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
SQ SEQUENCE 191 AA; 22314 MW; CCE57097DD3779BD CRC64;

Query Match
Best Local Similarity 57.5%; Score 69; DB 4; Length 191;
Matches 16; Conservative 2; Mismatches 2; Indels 44; Gaps 1;

Qy 1 CECRPKQRTKPE-----KCD 16
Db 128 CECRPKQRTKPEPCSESRKRLFVDPQTCCKSCNTDSRCKARQLEINERTCSD 187
Oy 17 KPRR 20
Db 188 KPRR 191

RESULT 12
ID 095NE5 PRELIMINARY; PRT; 191 AA.
AC 095NE5;
DT 01-DEC-2001 (TREMBlrel. 19, Created)
DT 01-DEC-2001 (TREMBlrel. 19, last sequence update)
DT 01-OCT-2002 (TREMBlrel. 22, last annotation update)
DE SIMVEGF165.
GN SIMVEGF165.
OS Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheidae;
OC Cercopitheidae; Macaca.
OX NCBI_TaxId=9541;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=96245208; PubMed=8641836;
RA Shima D.T., Gougos A., Miller J.W., Tolentino M., Robinson G.,
RA Adams A.P., D'Amore P.A.;
RT "Cloning and mRNA expression of vascular endothelial growth factor in
RT isobemic retinas of Macaca fascicularis.";
RL Invest. Ophthalmol. Vis. Sci. 37:1334-1340(1996).
DR EMBL; S82167; AAB47118.1; -.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.

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DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
SQ SEQUENCE 191 AA; 22314 MW; CCE57097DD3779BD CRC64;

Query Match 57.5%; Score 69; DB 6; Length 191;  
Best Local Similarity 25.0%; Pred. No. 0.011;  
Matches 16; Conservative 2; Mismatches 2; Indels 44; Gaps 1;

OY 1 CECRPKDKRTKPE-----KCD 16  
DB 128 CECRPKDKRARENPGPCSEKRLFLVDPQTCCKSCNTSRCKAROLEINERTCRD 187

OY 17 KPRR 20  
DB 188 KPRR 191

## RESULT 13

O95LQ4 PRELIMINARY; PRT; 189 AA.  
AC O95LQ4;  
DT 01-DEC-2001 (TREMBLrel. 19, Created)  
DT 01-MAR-2003 (TREMBLrel. 23, Last sequence update)  
DE Vascular endothelial growth factor.  
OS Felis silvestris catus (Cat).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Carnivora; Fissipedia; Felidae; Felis.  
OK NCBI\_TaxID=9685;  
RN (1)

RP SEQUENCE FROM N.A.  
RA Koga I., Kobayashi Y., Yazawa M., Masuda K., Ohno K., Tsujimoto H.;  
RT "Nucleotide sequence and expression of the feline vascular endothelial  
RT growth factor.";  
RL Submitted (SEP-2001) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AB071947; BAB68520.1; -  
DR InterPro; IPR000072; PD\_growth\_factor.  
DR Pfam; PF00341; PDGF\_1.  
DR ProDom; PD001629; PD\_growth\_factor; 1.  
DR SMART; SM00141; PDGF\_1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
SQ SEQUENCE 189 AA; 22193 MW; C1E4646759AB3FD6 CRC64;

Query Match 56.7%; Score 68; DB 6; Length 189;  
Best Local Similarity 73.3%; Pred. No. 0.015;  
Matches 11; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

OY 1 CECRPKDKRTKPEK 15  
DB 127 CECRPKDKRAXENPC 141

## RESULT 14

O9XT61 PRELIMINARY; PRT; 102 AA.  
AC O9XT61;  
DT 01-NOV-1999 (TREMBLrel. 12, Created)  
DT 01-NOV-1999 (TREMBLrel. 12, Last sequence update)  
DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
DE Vascular endothelial growth factor (Fragment).  
GN VEGF.  
OS Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
OC Cercopithecinae; Macaca.  
OX NCBI\_TaxID=9541;  
RN (1)

RP SEQUENCE FROM N.A.  
RC TISSUE=Lung;  
RA Kim I.K., Ryan A.M., Rohan R., Amaro S., Aguilar S., Miller J.W.,  
RA Adams A.P.;  
RT "Constitutive expression of VEGF, VEGFR-1 and VEGFR-2 in normal

RT eyes.";  
RL Submitted (NOV-1998) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AF106942; AAD20589.1; -  
DR InterPro; IPR000072; PD\_growth\_factor.  
DR Pfam; PF00341; PDGF\_1.  
FT NON-TER 1  
SQ SEQUENCE 102 AA; 12065 MW; 5F2D1A765DC29E02 CRC64;

Query Match 55.8%; Score 67; DB 6; Length 102;  
Best Local Similarity 78.6%; Pred. No. 0.012;  
Matches 11; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CECRPKDKRTKPEK 14  
DB 15 CECRPKDKRAREK 28

## RESULT 15

O8WMQ4 PRELIMINARY; PRT; 127 AA.  
AC O8WMQ4;  
DT 01-MAR-2002 (TREMBLrel. 20, Created)  
DT 01-MAR-2002 (TREMBLrel. 20, Last sequence update)  
DT 01-OCT-2002 (TREMBLrel. 22, Last annotation update)  
DE Vascular endothelial growth factor (Fragment).  
OS Sus scrofa (Pig).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.  
OK NCBI\_TaxID=9823;  
RN (1)

RP SEQUENCE FROM N.A.  
RA Yuan H., Li J.;  
RT TISSUE=Myocardium;  
RT "The expression of VEGF in porcine collateral-dependent myocardial by  
RT exercise training.";  
RL Submitted (JAN-2002) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AY072734; AAL68393.1; -  
DR InterPro; IPR000072; PD\_growth\_factor.  
DR Pfam; PF00341; PDGF\_1.  
DR ProDom; PD001629; PD\_growth\_factor; 1.  
DR SMART; SM00141; PDGF\_1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
DR NON-TER 127  
SQ SEQUENCE 127 AA; 14920 MW; 5AB63F01ABEC29ED CRC64;

Query Match 55.8%; Score 67; DB 6; Length 127;  
Best Local Similarity 78.6%; Pred. No. 0.014;  
Matches 11; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CECRPKDKRTKPEK 14  
DB 85 CECRPKDKRAREK 98

Search completed: January 30, 2004, 11:44:39  
Job time : 21.7179 secs





PA (ENTR-) ENTREMED INC.  
 XX  
 PI Holaday JW, Ruiz A, Madsen J;  
 DR WPI: 2000-594263/56.  
 XX  
 PT An immunogenic composition useful for treating cancer or  
 PT hyperproliferative disorders comprises an immunogenic peptide fragment  
 PT of fibroblast growth factor and/or vascular endothelial growth factor -  
 XX  
 PS Claim 13; Page 28; 95pp; English.  
 XX  
 CC AAB18542-51 represent immunogenic peptide fragments of fibroblast  
 CC growth factor (FGF) and/or vascular endothelial growth factor (VEGF).  
 CC The peptides are used to produce immunogenic compositions. The  
 CC immunogenic composition is used for treating cancer or  
 CC hyperproliferative disorders, especially haemangioma, solid tumours,  
 CC blood borne tumours, leukaemia, metastasis, telangiectasia, psoriasis,  
 CC scleroderma, pyogenic granuloma, myocardial angiogenesis, Crohn's  
 CC disease, plaque neovascularisation, arteriovenous malformations,  
 CC corneal diseases, rubecosis, neovascular glaucoma, diabetic retinopathy,  
 CC retrolental fibroplasia, arthritis, diabetic neovascularisation, macular  
 CC degeneration, wound healing, peptic ulcer, Helicobacter related  
 CC diseases, fractures, keloids, vasculogenesis, hematopoiesis, ovulation,  
 CC menstruation, placentaion and cat scratch fever.  
 CC  
 SQ Sequence 21 AA;  
 XX  
 Query Match 100.0%; Score 114; DB 21; Length 21;  
 Best Local Similarity 100.0%; Pred. No. 2.9e-12;  
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 OY 1 APTTEGEQKSHVVKFMDVYC 21  
 DB 1 APTTEGEQKSHVVKFMDVYC 21  
 XX  
 RESULT 2  
 ID AAM03041 standard; protein; 133 AA.  
 AC AAM03041;  
 XX  
 DT 11-FEB-1997 (first entry)  
 XX  
 DE Mutant vascular endothelial growth factor (truncated protein).  
 XX  
 KW Receptor protein tyrosine kinase; assay; screening; agonist;  
 KW activator; vascular permeability; angiogenesis; tumour therapy;  
 KW wound healing; vascular endothelial growth factor;  
 KW neuroepithelial tyrosine kinase.  
 XX  
 OS Mus musculus.  
 XX  
 PN WO9620403-A1.  
 XX  
 PD 04-JUL-1996.  
 XX  
 PF 22-DEC-1995; 95WO-US16753.  
 XX  
 PR 23-DEC-1994; 94AU-0000301.  
 PR 23-DEC-1994; 94AU-0000300.  
 XX  
 PA (LUDM-) LUDMIG INST CANCER RES.  
 XX  
 PI Stacker SA, Wilks AF;  
 XX  
 DR WPI: 1996-321946/32.  
 XX  
 PT New receptor protein tyrosine kinase assays - used to identify  
 PT inhibitors or activators which can be used in therapy involving  
 PT angiogenesis or vascular permeability  
 XX

PS Claim 33; Page 52; 78pp; English.  
 XX  
 CC Receptor protein tyrosine kinase assays can be used to  
 CC identify inhibitors of receptor tyrosine kinases which can be  
 CC utilised for inhibiting vascular permeability or for preventing  
 CC angiogenesis e.g in tumour therapy; or the assays can be used  
 CC to identify activators of receptor tyrosine kinases which can be used  
 CC to induce vascular permeability or to enhance angiogenic activity,  
 CC e.g., in wound healing. This mutant vascular endothelial growth factor  
 CC is a truncated protein. It is a receptor agonist.  
 CC  
 SQ Sequence 133 AA;  
 XX  
 Query Match 92.1%; Score 105; DB 17; Length 133;  
 Best Local Similarity 100.0%; Pred. No. 8.3e-10;  
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 OY 1 APTTEGEQKSHVVKFMDVY 20  
 DB 27 APTTEGEQKSHVVKFMDVY 46  
 XX  
 RESULT 3  
 ID AAY24316 standard; Protein; 141 AA.  
 AC AAY24316;  
 XX  
 DT 16-SEP-1999 (first entry)  
 XX  
 DE Mouse vascular endothelial growth factor 115.  
 XX  
 KW Mouse; vascular endothelial growth factor; VEGF115.  
 XX  
 OS Mus sp.  
 XX  
 PN JP1169183-A.  
 XX  
 PD 29-JUN-1999.  
 XX  
 PF 11-DEC-1997; 97JP-0362118.  
 XX  
 PR 11-DEC-1997; 97JP-0362118.  
 XX  
 PA (AGEN ) AGENCY OF IND SCI & TECHNOLOGY.  
 PA (TONG ) TOA GOSSEI CHEM IND LTD.  
 XX  
 DR WPI: 1999-422621/36.  
 DR N-PSDB; AAX88959.  
 XX  
 PT Vascular endothelial growth factor - and DNA encoding it  
 XX  
 PS Claim 1; Page 8; 16pp; Japanese.  
 XX  
 CC The present sequence represents mouse vascular endothelial growth  
 CC factor designated VEGF115.  
 CC  
 SQ Sequence 141 AA;  
 XX  
 Query Match 92.1%; Score 105; DB 20; Length 141;  
 Best Local Similarity 100.0%; Pred. No. 8.9e-10;  
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 OY 1 APTTEGEQKSHVVKFMDVY 20  
 DB 27 APTTEGEQKSHVVKFMDVY 46  
 XX  
 RESULT 4  
 ID AAM03038 standard; protein; 190 AA.  
 AC AAM03038;  
 XX



```
XX      04-JUL-1996.
PD      XX
PF      22-DEC-1995;    95WO-US16753.
PR      23-DEC-1994;    94AU-0000301.
PS      23-DEC-1994;    94AU-0000300.
SX      (LUDW-) LUDWIG INST CANCER RES.
TX      Stacker SA, Wilks AF;
XX      WPI; 1996-321946/32.
DR      XX
XX      New receptor protein tyrosine kinase assays - used to identify
PT      inhibitors or activators which can be used in therapy involving
PS      angiogenesis or vascular permeability
XX      Claim 33; Page 50; 78pp; English.
PS      Receptor protein tyrosine kinase assays can be used to
CC      identify inhibitors of receptor tyrosine kinases which can be
CC      utilised for inhibiting vascular permeability or for preventing
CC      angiogenesis e.g in tumour therapy; or the assays can be used to
CC      identify activators of receptor tyrosine kinases which can be used
CC      to induce vascular permeability or to enhance angiogenic activity,
CC      e.g., in wound healing. This mutant vascular endothelial growth factor
CC      comprises an Hllg substitution and was identified in an assay
CC      involving the receptor protein neuroepithelial tyrosine kinase
CC      (NWK). It is a receptor agonist.
XX      SQ
XX      Sequence    190 AA;
SQ      Query Match          92.1%; Score 105; DB 17; Length 190;
        Best Local Similarity 100.0%; Pred. No. 1,3e-09;
        Matches   20; Conservative   0; Mismatches   0; Indels   0; Gaps   0
QY      1 APTTEGEOKSHVIRKFMVDV 20
        |||||
DB      27 APTTEGEOKSHVIRKFMVDV 46
RESULT 6
AAW03040
ID      AAW03040 standard; protein; 190 AA.
AC      AAW03040;
DT      11-FEB-1997 (first entry)
DE      Mutant vascular endothelial growth factor.
KW      Receptor protein tyrosine kinase; assay; screening; agonist;
KW      activator; vascular permeability; angiogenesis; tumour therapy;
KW      wound healing; vascular endothelial growth factor;
KW      neuroepithelial tyrosine kinase.
OS      Mus musculus.
EN      WO9620403-A1.
PD      04-JUL-1996.
PF      22-DEC-1995;    95WO-US16753.
PR      23-DEC-1994;    94AU-0000301.
PS      23-DEC-1994;    94AU-0000300.
SX      (LUDW-) LUDWIG INST CANCER RES.
TX      Stacker SA, Wilks AF;
XX      WPI; 1996-321946/32.
```

XX New receptor protein tyrosine kinase assays - used to identify  
 PT inhibitors or activators which can be used in therapy involving  
 PT angiogenesis or vascular permeability  
 XX  
 PS Claim 33; Page 51; 78pp; English.  
 CC Receptor protein tyrosine kinase assays can be used to  
 CC identify inhibitors of receptor tyrosine kinases which can be  
 CC utilised for inhibiting vascular permeability or for preventing  
 CC angiogenesis e.g. in tumour therapy; or the assays can be used to  
 CC identify activators of receptor tyrosine kinases which can be used  
 CC to induce vascular permeability or to enhance angiogenic activity,  
 CC e.g., in wound healing. This mutant vascular endothelial growth factor  
 CC comprises a G117V substitution and was identified in an assay  
 CC involving the receptor protein neuroepithelial tyrosine kinase  
 CC (NTK). It is a receptor agonist.  
 CC  
 SQ Sequence 190 AA;  
 Query Match 92.1%; Score 105; DB 17; Length 190;  
 Best Local Similarity 100.0%; Pred. No. 1.3e-09;  
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 APTTEGQKSHVVKFMDVY 20  
 DB 27 APTTEGQKSHVVKFMDVY 46  
 RESULT 7  
 AAM03042  
 ID AAM03042 standard; protein; 190 AA.  
 AC AAM03042;  
 DT 11-FEB-1997 (first entry)  
 DE Mutant vascular endothelial growth factor.  
 KM Receptor protein tyrosine kinase; assay; screening; agonist;  
 KM activator; vascular permeability; angiogenesis; tumour therapy;  
 KM wound healing; vascular endothelial growth factor;  
 KM neuroepithelial tyrosine kinase.  
 OS Mus musculus.  
 FN WO9620403-A1.  
 PD 04-JUL-1996.  
 PF 22-DEC-1995; 95MO-US16753.  
 PR 23-DEC-1994; 94AU-0000301.  
 PR 23-DEC-1994; 94AU-0000300.  
 PA (LUDWIG-) LUDWIG INST CANCER RES.  
 PI Stackel SA, Wilks AF;  
 DR WPI, 1996-321946/32.  
 PT New receptor protein tyrosine kinase assays - used to identify  
 PT inhibitors or activators which can be used in therapy involving  
 PT angiogenesis or vascular permeability  
 XX  
 PS Claim 33; Page 52-53; 78pp; English.  
 CC Receptor protein tyrosine kinase assays can be used to  
 CC identify inhibitors of receptor tyrosine kinases which can be  
 CC utilised for inhibiting vascular permeability or for preventing  
 CC angiogenesis e.g. in tumour therapy; or the assays can be used to  
 CC identify activators of receptor tyrosine kinases which can be used  
 CC to induce vascular permeability or to enhance angiogenic activity,

CC e.g., in wound healing. This mutant vascular endothelial growth factor  
 CC comprises the following substitutions: K109R, P110S, H111G, Q112D,  
 CC S113R, Q114P and H115S. It was designated VEGFO and was identified  
 CC in an assay involving the receptor protein neuroepithelial tyrosine  
 CC kinase (NTK). It is a receptor agonist.  
 CC  
 SQ Sequence 190 AA;  
 Query Match 92.1%; Score 105; DB 17; Length 190;  
 Best Local Similarity 100.0%; Pred. No. 1.3e-09;  
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 APTTEGQKSHVVKFMDVY 20  
 DB 27 APTTEGQKSHVVKFMDVY 46  
 RESULT 8  
 ABB57038  
 ID ABB57038 standard; Protein; 190 AA.  
 AC ABB57038;  
 DT 07-MAR-2002 (first entry)  
 DE Mouse ischaemic condition related protein sequence SEQ ID NO:50.  
 KM Mouse; ischaemia; compressive ischaemia; occlusive ischaemia;  
 KM vasospastic ischaemia; ischaemic condition; ischaemic disease.  
 OS Mus musculus.  
 FN WO200188186-A2.  
 PD 22-NOV-2001.  
 PF 18-MAY-2001; 2001WO-JP04192.  
 PR 18-MAY-2000; 2000JP-0145977.  
 PA (UNIV-) UNIV NIHON SCHOOL JURIDICAL PERSON.  
 PI Ishikawa K, Asai S, Takahashi Y, Nagata T, Ishii Y;  
 DR WPI; 2002-034733/04.  
 DR N-PSDB; ABI99232.  
 PT Examining the ischemic condition (e.g. occlusive ischemia) by measuring  
 PT expression levels of particular genes defined in the specification or  
 PT by determining the expression profile of a gene group comprising these  
 PT genes -  
 XX  
 PS Claim 2; Page 167-168; 2690pp; English.  
 CC The present invention describes a method for examining ischaemic  
 CC conditions, comprising measuring the expression levels of particular  
 CC genes (I) in a test sample or determining the expression profile of a  
 CC gene group in the sample comprising genes selected from (I). The method  
 CC is useful for examining the ischaemic condition (e.g. compressive  
 CC ischaemia, occlusive ischaemia or vasospastic ischaemia) by measuring  
 CC expression levels of particular genes (ABI99202 to ABI99912, encoding  
 CC the protein sequences in ABB57020 to ABB57374) or by determining the  
 CC expression profile of a gene group comprising these genes. The  
 CC expression levels or expression profiles produced by these genes are  
 CC used as an indicator when screening for ischaemic condition-improving  
 CC drugs or therapeutics for ischaemic diseases. ABI99913 and ABI99914  
 CC represent PCR primers for a mouse ischaemic condition related sequence,  
 CC which are used in the exemplification of the present invention.  
 XX  
 SQ Sequence 190 AA;  
 Query Match 92.1%; Score 105; DB 23; Length 190;  
 Best Local Similarity 100.0%; Pred. No. 1.3e-09;

Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 APTTEGOKSHVVKEMDVY 20  
 |||||  
 Db 27 APTTEGOKSHVVKEMDVY 46

## RESULT 9

AAAR22348 standard; Protein; 146 AA.

AC AAR22348;

DT 29-JUL-1992 (first entry)

DE Alternative form of VEGF mature A-subunit with 120 amino acids.

KM Rat glioma cell; GS-9L; conditioned medium; heterodimer; VEGF-II;

KW homodimer; mitogenesis; vascular repair; blood vessel implant;

XX polymerase chain reaction; alternative splicing.

OS Rattus.

Key Location/Qualifiers

FT 1..26 /label= signal

FT 27..146 /label= VEGF\_A-subunit

FT /note= "120 amino acids long"

EP476983-A.

25-MAR-1992.

18-SEP-1991; 91EP-0308489.

21-SEP-1990; 90US-0586640.

21-SEP-1990; 90US-0586638.

(MERI ) MERCK & CO INC.

Bayne ML, Conn GL, Thomas KA;

WPI; 1992-098641/13.

N-PSDB; AAQ23039.

Vascular endothelial cell growth factor II - used as coating for

artificial blood vessels or to promote tissue repair

Example 9; Page 14 and Fig 4; 38pp; English.

Multiple cDNAs encoding alternative forms of the VEGF A-subunit

were amplified using PCR primers as in AAQ23049 and AAQ23050. Three

sets of clones were identified. Clone #12 encoded the 164 amino acid

secreted form of VEGF A-subunit (see AAR22347). Clone #14 has a 135 bp

deletion and thus encodes a 120 amino acid form and Clone #16 has a

72bp insertion and encodes a 188 amino acid mature protein (AAR22351).

The deleted region lies between the second base of the Asn140 codon

and the third base of the Arg184 codon. The 120 amino acid mature

protein has Asn140 converted to Lys140.

See also AAQ23038-Q23059.

Sequence 146 AA;

Query Match 88.6%; Score 101; DB 13; Length 146;

Best Local Similarity 90.0%; Pred. No. 4.4e-09;

Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

RESULT 10

AAAR27354 standard; Protein; 146 AA.

AC AAR27354;

DT 25-MAR-2003 (updated)

DT 25-FEB-1993 (first entry)

DE Sequence of vascular endothelial cell growth factor VEGF A

146 amino acid residue subunit.

KM Vascular development; mitogen; blood vessel;

KW vascular endothelial growth factor; neovascularisation.

OS Rattus.

EP506477-A1.

30-SEP-1992.

27-MAR-1992; 92EP-0302750.

28-MAR-1991; 91US-0676436.

(MERI ) MERCK & CO INC.

Bayne ML, Thomas KA;

WPI; 1992-325745/40.

N-PSDB; AAQ28953.

Vascular endothelial cell growth, used for inducing tissue repair

and growth.

Disclosure: Fig 4; 61pp; English.

The full length coding region of the A subunit or monomer of VEGF

is determined from three sets of overlapping cDNA clones. Degenerate

oligo. primers based on the amino acid sequences

Phe-Met-Asp-Val-Tyr-Gln from polypeptide 142 (residues 42-47) and

Cys-Lys-Asn-Thr-Asp from polypeptide 138 (residues 164-168) were used

to PCR amplify the central region of the cDNA for VEGF A chain.

A single band migrating at 420 bp was gel purified, digested with SalI,

ligated into pGEM3Zf(+) and sequenced. The nucleotide sequence

obtained (p4238) was used to design antisense and sense PCR primers

are denoted p5-15 and pW3, respectively. In addition to the cDNA

coding the 164 amino acid secreted form identified by protein

sequencing, two alternatively spliced cDNAs encoding a 146 amino acid

and a 214 amino acid forms are cloned and sequenced.

(Updated on 25-MAR-2003 to correct PN field.)

Sequence 146 AA;

Query Match 88.6%; Score 101; DB 13; Length 146;

Best Local Similarity 90.0%; Pred. No. 4.4e-09;

Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

RESULT 11

AAAR53640 standard; Protein; 146 AA.

AC AAR53640;

DT 30-JUL-1998 (first entry)

```

XX XX Vascular endothelial growth factor II A subunit variant.
DE XX
XX XX Vascular endothelial cell growth factor; VEGF II; rat; glioma cell;
KM XX mitogenesis; blood vessel growth; artificial blood vessel.
XX XX
XX OS Rattus sp.
XX XX
XX PN US5726152-A.
XX XX 10-MAR-1998.
XX XX
XX PF 31-AUG-1994; 94US-0299185.
XX XX
XX PR 31-AUG-1994; 94US-0299185.
XX PR 21-SEP-1990; 90US-0586638.
XX PR 05-JAN-1993; 93US-0000834.
XX XX
XX PA (MERI ) MERCK & CO INC.
XX PI Bayne ML, Conn GL, Thomas KA;
XX XX
XX DR WPI; 1998-206007/18.
XX XX
XX PT Vascular endothelial growth factor proteins - having specified A and
XX PT B sub-units
XX PS
XX PS Claim 1; Page -: 46pp; English.
XX XX
XX CC The present sequence represents a rat vascular endothelial growth factor
XX CC II (VEGF II) A subunit variant with a conversion of Asn 140 to Lys 140,
XX CC and the deletion of His 141 to Arg 184 from the wild-type given in
XX CC AAW53639. The present invention describes: (1) a mammalian VEGF II
XX CC and protein comprising an A subunit from AAW53639, AAW53640 or AAW53641, and
XX CC a B subunit from AAW53638, AAW53639 or the first 115-135 amino acids of
XX CC AAW53638; and (2) a mammalian VEGF comprising a heterodimer or homodimer
XX CC of B subunits. The growth factor is used for promoting vascular
XX CC development and repair and for promoting tissue repair.
XX CC N.B. The present sequence is not given in the specification but is
XX CC derived from Fig 5 as stated in the claim.
XX CC
XX SQ Sequence 146 AA;
XX XX
XX Query Match 88.6%; Score 101; DB 19; Length 146;
XX Best Local Similarity 90.0%; Pred. No. 4.4e-09;
XX Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;
OY 1 APTTEGEOKSHVVKFMDVY 20
DB 27 APTTEGEOKSHVVKFMDVY 46

```

```

PR 28-MAR-1991; 91US-0676436.
XX XX
XX PA (MERI ) MERCK & CO INC.
XX XX
XX PI Thomas KA, Bayne ML;
XX XX
XX DR WPI; 2000-038268/03.
XX DR N-PSDB; AA239827.
XX XX
XX PT Purified and isolated vascular endothelial cell growth factor C subunit
XX PT for the induction of tissue repair or growth -
XX XX
XX PS Disclosure; Fig 3; 58pp; English.
XX XX
XX CC This is the amino acid sequence of a 146 amino acid residue A subunit of
XX CC vascular endothelial cell growth factor (VEGF). The invention relates to
XX CC a purified and isolated VEGF C subunit amino acid sequence AAY57025.
XX CC VEGF exists in various microheterogeneous forms, and is useful for the
XX CC promotion of vascular development and repair. The invention also relates
XX CC to human VEGF heterodimers AC or BC and homodimer CC, where A, B and C
XX CC are subunit amino acid sequences. The VEGF AC, BC or CC amino acid
XX CC sequences can be used in a tissue repairing pharmaceutical composition.
XX CC The novel growth factors are useful for the production or coverage of
XX CC artificial blood vessels with vascular endothelial cell. They are also
XX CC useful for the induction of tissue growth and repair.
XX CC
XX SQ Sequence 146 AA;
XX XX
XX Query Match 88.6%; Score 101; DB 21; Length 146;
XX Best Local Similarity 90.0%; Pred. No. 4.4e-09;
XX Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;
OY 1 APTTEGEOKSHVVKFMDVY 20
DB 27 APTTEGEOKSHVVKFMDVY 46

```

```

RESULT 12
AAY57029
ID AAY57029 standard; Protein; 146 AA.
XX
XX AC AAY57029;
XX XX
XX DT 15-FEB-2000 (first entry)
XX XX
XX DE VEGFA 146 amino acid residue subunit sequence.
XX XX
XX KM VEGF; vascular endothelial growth factor; A subunit; tissue growth;
XX KM vascular development; artificial blood vessel; repair; human.
XX OS Homo sapiens.
XX XX
XX PN US5994300-A.
XX XX
XX PD 30-NOV-1999.
XX XX
XX PF 20-SEP-1993; 93US-0124259.
XX PS

```

```

RESULT 13
AAB37505
ID AAB37505 standard; Protein; 146 AA.
XX
XX AC AAB37505;
XX XX
XX DT 26-FEB-2001 (first entry)
XX XX
XX DE Rat VEGF subunit A SEQ ID NO: 33.
XX XX
XX KM Vascular endothelial growth factor; VEGF C subunit; cell division;
XX KM artificial blood vessel; tissue growth; tissue repair.
XX OS Rattus sp.
XX XX
XX PN US6140073-A.
XX XX
XX PD 31-OCT-2000.
XX XX
XX PF 16-JAN-1996; 96US-0586039.
XX XX
XX PR 20-SEP-1993; 93US-0124259.
XX PR 28-MAR-1991; 91US-0676436.
XX XX
XX PA (MERI ) MERCK & CO INC.
XX PI Thomas KA, Bayne ML;
XX XX
XX DR WPI; 2001-014858/02.
XX DR N-PSDB; AAC83512.
XX XX
XX PT Human vascular endothelial cell growth factor (VEGF) C subunit DNA and
XX PT protein, useful for promoting vascular development and repair, and for
XX PT promoting tissue repair, especially for treating wounds in mammals -
XX PS Example 9; Fig 4; 58pp; English.

```

XX The present invention is concerned with the human vascular endothelial  
 CC growth factor (VEGF) C subunit. VEGF is a vascular endothelial cell  
 CC mitogen and can be used to promote vascular development and repair. The C  
 CC subunit may exist as a homodimer or a heterodimer with the VEGF A or B  
 CC subunit. VEGF can be used in the treatment of wounds of mammals, to cover  
 CC artificial blood vessels with vascular endothelial cells, in the  
 CC production of artificial blood vessels and to induce tissue repair or  
 CC growth.

XX Sequence 146 AA;

Query Match 88.6%; Score 101; DB 22; Length 146;  
 Best Local Similarity 90.0%; Pred. No. 4.4e-09;  
 Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGEOKSHVVKFMDVY 20  
 |||||:|||||  
 DB 27 APTTEGEOKAHEVVKFMDVY 46

# RESULT 14

AA08120 AAR08120 standard; protein; 190 AA.

XX AAR08120;

DT 24-FEB-1991 (first entry)

DE Mammalian glioma-derived growth factor (GDGF) gene product.

XX Mitogenesis; wound healing.

XX Rattus rattus.

XX EP399816-A.

PD 28-NOV-1990.

PF 23-MAY-1990; 90EP-0305637.

XX 30-MAR-1990; 90US-0500421.

PR 24-MAY-1989; 89US-0356477.

XX (MERI ) MERCK & CO INC.

PI Bayne ML, Conn GL, Thomas KA;

DR N-PSDB; AAQ06741.

PT Glioma-derived growth factor - stimulates mitogenesis of  
 PT mammalian endothelial cells and is used in vitro or in vivo to  
 PT stimulate growth

PS Claim 19; Fig 1; 19pp; English.

XX GDGF stimulates mitogenesis and vascular endothelial cell growth,  
 CC useful in promoting wound healing or tissue growth. It allows vascular  
 CC explants to be grown on a GDGF treated surface for implantation in a  
 CC host. The sequence was isolated from the GS-9L rat cells.

XX Sequence 190 AA;

Query Match 88.6%; Score 101; DB 11; Length 190;  
 Best Local Similarity 90.0%; Pred. No. 6e-09;  
 Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGEOKSHVVKFMDVY 20  
 |||||:|||||  
 DB 27 APTTEGEOKAHEVVKFMDVY 46

# RESULT 15

AA022347 AAR22347 standard; Protein; 190 AA.

XX AAR22347;

DT 29-JUL-1992 (first entry)

DE Rat Vascular Endothelial Growth Factor A-subunit.

XX VEGF-I; mammalian glioma cell; conditioned medium; heterodimer;

KW homodimer; mitogenesis; VEGF-II; vascular repair;

XX blood vessel implant.

XX Rattus.

XX Key

FT Peptide

FT Protein

FT Modified-site

FT Peptide

FT Peptide

FT Peptide

FT Peptide

FT Peptide

FT Peptide

FT Peptide

FT Peptide

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## Location/Qualifiers

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/label= signal

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/label= mature\_VEGF\_A\_monomer

100..102

/label= N-glycosylation

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/label= T27

/note= "tryptic peptide"

42..48

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/note= "V8 Protease cleavage peptide"

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/label= V16B

/note= "V8 Protease cleavage peptide"

148..177

/label= V21

/note= "V8 Protease cleavage peptide"

178..190

/label= V11

/note= "V8 Protease cleavage peptide"

36..41

/label= L12

/note= "Leu C cleavage peptide"

42..133

/label= L42

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FT      134..150
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FT      /note= "Leu C cleavage peptide"
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FT      /label= L20
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FT      /note= "Cyanogen Bromide cleavage peptide"
FT      107..119
FT      /label= CB18-19
FT      /note= "Cyanogen Bromide cleavage peptide"
FT      Peptide
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FT      EP476983-A.
FT
FT      25-MAR-1992.
FT
FT      18-SEP-1991; 91EP-0308489.
FT
FT      21-SEP-1990; 90US-0586640.
FT      21-SEP-1990; 90US-0586638.
FT
FT      (MERI ) MERCK & CO INC.
FT
FT      PA
FT      XX
FT      PI      Bayne ML, Conn GL, Thomas KA;
FT      XX
FT      DR      MPI: 1992-098641/13.
FT      DR      N-PsDB; AAQ23038.
FT
FT      Vascular endothelial cell growth factor II - used as coating for
PT      artificial blood vessels or to promote tissue repair
PT
PT      Disclosure; Fig 4; 38pp; English.
PS
XX
XX      The VEGF-I A-subunit was found to be identical to the VEGF-II
CC      A-subunit. The isolated A-monomer was treated with trypsin, CNBr,
CC      Lys C or V8 protease. The peptides resulting from the digestions
CC      were isolated and sequenced using the Edman degradation reaction in
CC      a gas phase sequenator. In addition to the peptide fragments which
CC      were directly sequenced, the full-length protein sequence was
CC      deduced from the cDNA encoding it.
CC      See also AAQ23040-Q23059.
CC
CC      XX
SQ      Sequence 190 AA;

Query Match 88.6%; Score 101; DB 13; Length 190;
Best Local Similarity 90.0%; Pred. No. 6e-09;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY      1 APTGEGOKSHEVIKMDYV 20
      |||||:|||||
Db      27 APTGEGOKAHEVVKMDYV 46

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Search completed: January 30, 2004, 11:40:07  
 Job time : 29.8788 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:35:33 ; Search time 8.93846 Seconds  
(without alignments)  
99.405 Million cell updates/sec

Title: US-09-266-543-5

Perfect score: 114

Sequence: 1 APTEGEQKSHVIRKMDVYC 21

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 328717 seqs, 42310858 residues

Total number of hits satisfying chosen parameters: 328717

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database :

Issued Patents AA:\*  
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4: /cgn2\_6/prodata/1/1aa/6B\_COMB.pep:\*  
5: /cgn2\_6/prodata/1/1aa/6CTUS\_COMB.pep:\*  
6: /cgn2\_6/prodata/1/1aa/backfill1.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

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1	105	92.1	190	2	US-08-569-063C-20
2	101	88.6	25	3	US-08-807-992B-31
3	101	88.6	146	3	US-08-586-039B-33
4	101	88.6	146	4	US-09-699-769-33
5	101	88.6	190	3	US-08-586-039B-31
6	101	88.6	190	4	US-09-699-769-31
7	101	88.6	214	3	US-08-586-039B-35
8	101	88.6	214	4	US-09-699-769-35
9	89.5	78.5	189	1	US-08-669-427A-15
10	81	71.1	21	6	5194596-11
11	81	71.1	21	6	5219739-11
12	81	71.1	39	6	5332671-14
13	81	71.1	41	6	5194596-21
14	81	71.1	41	6	5219739-26
15	81	71.1	120	6	5194596-9
16	81	71.1	120	6	5219739-9
17	81	71.1	164	6	5194596-17
18	81	71.1	164	6	5219739-17
19	81	71.1	164	6	5219739-18
20	81	71.1	190	6	5332671-3
21	80	70.2	25	1	US-08-327-709-1
22	80	70.2	25	1	US-08-457-229-1
23	80	70.2	25	2	US-08-457-487-1
24	80	70.2	25	2	US-08-464-956-1
25	80	70.2	25	2	US-08-479-733A-30
26	80	70.2	25	2	US-08-350-212-1
27	80	70.2	25	3	US-08-807-992B-17

28	80	70.2	25	3	US-08-807-992B-20	Sequence 20, Appl
29	80	70.2	25	3	US-08-479-727A-30	Sequence 30, Appl
30	80	70.2	25	3	US-08-482-369A-30	Sequence 30, Appl
31	80	70.2	25	3	US-09-207-277-1	Sequence 1, Appl1
32	80	70.2	25	4	US-09-561-500-11	Sequence 11, Appl
33	80	70.2	25	4	US-09-561-108-11	Sequence 11, Appl
34	80	70.2	25	4	US-09-561-526-11	Sequence 11, Appl
35	80	70.2	25	4	US-09-357-593-1	Sequence 11, Appl
36	80	70.2	25	4	US-09-561-499-11	Sequence 11, Appl
37	80	70.2	36	6	5240848-1	Patent No. 5240848
38	72	63.2	231	5	PCT-US96-09001-10	Sequence 10, Appl
39	68	59.6	14	3	US-08-586-039B-1	Sequence 1, Appl1
40	68	59.6	14	4	US-09-699-769-1	Sequence 1, Appl1
41	65.5	57.5	26	1	US-08-327-709-3	Sequence 3, Appl1
42	65.5	57.5	26	1	US-08-327-709-4	Sequence 4, Appl1
43	65.5	57.5	26	1	US-08-457-229-2	Sequence 2, Appl1
44	65.5	57.5	26	2	US-08-457-487-2	Sequence 2, Appl1
45	65.5	57.5	26	2	US-08-464-956-3	Sequence 3, Appl1

#### ALIGNMENTS

RESULT 1  
US-08-569-063C-20  
; Sequence 20, Application US/08569063C  
; Patent No. 5928939  
; GENERAL INFORMATION:  
; APPLICANT: ERIKSSON, Ulf  
; APPLICANT: OLOFSSON, Birgitta  
; APPLICANT: ALITALO, Kari  
; APPLICANT: PATUSOLA, Katri  
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR-B AND  
; NUMBER OF SEQUENCES: 23  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Evenson, McKeown, Edwards & Lenahan, P.L.L.C.  
; STREET: 1200 G Street, N.W., Suite 700  
; CITY: Washington  
; STATE: DC  
; COUNTRY: USA  
; ZIP: 20005  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patentin Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/569,063C  
; FILING DATE: 06-DEC-1995  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/469,427  
; FILING DATE: 06-JUN-1995  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/397,651  
; FILING DATE: 01-MAR-1995  
; ATTORNEY/AGENT INFORMATION:  
; NAME: EVANS, Joseph D  
; REGISTRATION NUMBER: 26, 269  
; REFERENCE/DOCKET NUMBER: 1064/41979CP3  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (202) 628-8800  
; TELEFAX: (202) 628-8844  
; INFORMATION FOR SEQ ID NO: 20:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 190 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; US-08-569-063C-20  
Query Match 92.1%; Score 105; DB 2; Length 190;

Best Local Similarity 100.0%; Pred. No. 3e-10;  
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGOKSHVIFKMDVY 20  
|||||  
Db 27 APTTEGOKSHVIFKMDVY 46  
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## RESULT 2

US-08-807-992B-31  
; Sequence 31, Application US/08807992B  
; Patent No. 6022541  
; GENERAL INFORMATION:

APPLICANT: Senger, Donald R  
TITLE OF INVENTION: Immunological preparation for concurrent  
TITLE OF INVENTION: specific binding to spatially exposed regions of vascular  
TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood  
TITLE OF INVENTION: vessel  
NUMBER OF SEQUENCES: 31  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: David Prashker, Esq.  
STREET: P. O. Box 5387  
CITY: Magnolia  
STATE: Massachusetts  
COUNTRY: USA

ZIP: 01930  
COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 3.50 inch, 1.40 MB storage

COMPUTER: IBM PS/1  
OPERATING SYSTEM: MS DOS  
SOFTWARE: Wordperfect version 5.1

CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/807,992B

FILING DATE: March 3, 1997

CLASSIFICATION: 424

ATTORNEY/AGENT INFORMATION:

NAME: David Prashker, Esq.  
REGISTRATION NUMBER: 29,693

REFERENCE/DOCKET NUMBER: BIS-033

TELEPHONE: (978) 525-3794

INFORMATION FOR SEQ ID NO: 31:

SEQUENCE CHARACTERISTICS:

LENGTH: 25 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: peptide

FRAGMENT TYPE: N-terminal

US-08-807-992B-31

Query Match 88.6%; Score 101; DB 3; Length 25;  
Best Local Similarity 90.0%; Pred. No. 1.4e-10;  
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGOKSHVIFKMDVY 20  
|||||  
Db 1 APTTEGOKSHVIFKMDVY 20  
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## RESULT 3

US-08-586-039B-33  
; Sequence 33, Application US/08586039B  
; Patent No. 6140073  
; GENERAL INFORMATION:

APPLICANT: Bayne, Marvin L.  
TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR C  
TITLE OF INVENTION: SUBUNIT  
NUMBER OF SEQUENCES: 49  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Merck & Co., Inc.

STREET: 126 E. Lincoln Avenue

CITY: Rahway

STATE: New Jersey

COUNTRY: USA

ZIP: 07065-0900

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Microsoft Word 6

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/586,039B

FILING DATE: 16-JAN-1996

CLASSIFICATION:

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 08/124,259

FILING DATE: 20-SEP-1993

APPLICATION NUMBER: 07/676,436

FILING DATE: 28-MAR-1991

ATTORNEY/AGENT INFORMATION:

NAME: Hand, J. Mark

REGISTRATION NUMBER: 36,545

REFERENCE/DOCKET NUMBER: 18361DA

TELEPHONE: (908) 594-3905

TELEFAX: (908) 594-4720

INFORMATION FOR SEQ ID NO: 33:

SEQUENCE CHARACTERISTICS:

LENGTH: 146 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-586-039B-33

Query Match 88.6%; Score 101; DB 3; Length 146;  
Best Local Similarity 90.0%; Pred. No. 1.1e-09;  
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGOKSHVIFKMDVY 20  
|||||  
Db 27 APTTEGOKSHVIFKMDVY 46  
|||||

## RESULT 4

US-09-699-769-33  
; Sequence 33, Application US/09699769  
; Patent No. 6569434  
; GENERAL INFORMATION:

APPLICANT: Bayne, Marvin L.  
TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR  
TITLE OF INVENTION: C SUBUNIT  
NUMBER OF SEQUENCES: 49

CORRESPONDENCE ADDRESS:

ADDRESSEE: Merck & Co., Inc.

STREET: 126 E. Lincoln Avenue

CITY: Rahway

STATE: New Jersey

COUNTRY: USA

ZIP: 07065-0900

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Microsoft Word 6

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/699,769

FILING DATE: 30-Oct-2000

CLASSIFICATION: <Unknown>

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 08/586,039

FILING DATE: 16-JAN-1996



APPLICATION NUMBER: 08/124,259  
FILING DATE: 20-SEP-1993  
APPLICATION NUMBER: 07/676,436  
FILING DATE: 28-MAR-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Hand, J. Mark  
REGISTRATION NUMBER: 36,545  
REFERENCE/DOCKET NUMBER: 18361DB  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (732) 594-4720  
TELEFAX: (732) 594-3905  
INFORMATION FOR SEQ ID NO: 33:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 146 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
SEQUENCE DESCRIPTION: SEQ ID NO: 33:  
US-09-699-769-33

Query Match 88.6%; Score 101; DB 4; Length 146;  
Best Local Similarity 90.0%; Pred. No. 1.1e-09;  
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Qy 1 APTEGEOKSHVVKFMDVY 20  
|||:||||:||||:||||:  
Db 27 APTEGEOKAHEVVKFMDVY 46

RESULT 5  
US-08-586-039B-31  
Sequence 31, Application US/08586039B  
Patent No. 6140073  
GENERAL INFORMATION:  
APPLICANT: Bayne, Marvin L.  
APPLICANT: Thomas Jr., Kenneth A.  
TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR C  
TITLE OF INVENTION: SUBUNIT  
NUMBER OF SEQUENCES: 49  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Merck & Co., Inc.  
STREET: 126 E. Lincoln Avenue  
CITY: Rahway  
STATE: New Jersey  
COUNTRY: USA  
ZIP: 07065-0900  
COMPUTER READABLE FORM:  
MEDIUM TYPE: floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Microsoft Word 6  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/586,039B  
FILING DATE: 16-JAN-1996  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 08/124,259  
FILING DATE: 20-SEP-1993  
APPLICATION NUMBER: 07/676,436  
FILING DATE: 28-MAR-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Hand, J. Mark  
REGISTRATION NUMBER: 36,545  
REFERENCE/DOCKET NUMBER: 18361DA  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (908) 594-3905  
TELEFAX: (908) 594-4720  
INFORMATION FOR SEQ ID NO: 31:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 190 amino acids  
TYPE: amino acid  
STRANDEDNESS: single

TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-586-039B-31

Query Match 88.6%; Score 101; DB 3; Length 190;  
Best Local Similarity 90.0%; Pred. No. 1.4e-09;  
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Qy 1 APTEGEOKSHVVKFMDVY 20  
|||:||||:||||:||||:  
Db 27 APTEGEOKAHEVVKFMDVY 46

RESULT 6  
US-09-699-769-31  
Sequence 31, Application US/09699769  
Patent No. 6569434  
GENERAL INFORMATION:  
APPLICANT: Bayne, Marvin L.  
APPLICANT: Thomas Jr., Kenneth A.  
TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR  
TITLE OF INVENTION: C SUBUNIT  
NUMBER OF SEQUENCES: 49  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Merck & Co., Inc.  
STREET: 126 E. Lincoln Avenue  
CITY: Rahway  
STATE: New Jersey  
COUNTRY: USA  
ZIP: 07065-0900  
COMPUTER READABLE FORM:  
MEDIUM TYPE: floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Microsoft Word 6  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/699,769  
FILING DATE: 30-Oct-2000  
CLASSIFICATION: <Unknown>  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 08/586,039  
FILING DATE: 16-JAN-1996  
APPLICATION NUMBER: 08/124,259  
FILING DATE: 20-SEP-1993  
APPLICATION NUMBER: 07/676,436  
FILING DATE: 28-MAR-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Hand, J. Mark  
REGISTRATION NUMBER: 36,545  
REFERENCE/DOCKET NUMBER: 18361DB  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (732) 594-4720  
TELEFAX: (732) 594-3905  
INFORMATION FOR SEQ ID NO: 31:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 190 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
SEQUENCE DESCRIPTION: SEQ ID NO: 31:  
US-09-699-769-31

Query Match 88.6%; Score 101; DB 4; Length 190;  
Best Local Similarity 90.0%; Pred. No. 1.1e-09;  
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Qy 1 APTEGEOKSHVVKFMDVY 20  
|||:||||:||||:||||:  
Db 27 APTEGEOKAHEVVKFMDVY 46

RESULT 7

US-08-586-039B-35  
; Sequence 35, Application US/085860398  
; Patent No. 6140073  
; GENERAL INFORMATION:  
; APPLICANT: Bayne, Marvin L.  
; APPLICANT: Thomas Jr., Kenneth A.  
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR C  
; TITLE OF INVENTION: SUBUNIT  
; NUMBER OF SEQUENCES: 49  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Merck & Co., Inc.  
; STREET: 126 E. Lincoln Avenue  
; CITY: Rahway  
; STATE: New Jersey  
; COUNTRY: USA  
; ZIP: 07065-0900  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Microsoft Word 6  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/586.039B  
; FILING DATE: 16-JAN-1996  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 08/124,259  
; FILING DATE: 20-SEP-1993  
; APPLICATION NUMBER: 07/676,436  
; FILING DATE: 28-MAR-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Hand, J. Mark  
; REGISTRATION NUMBER: 36,545  
; REFERENCE/DOCKET NUMBER: 18361DA  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (908) 594-3905  
; TELEFAX: (908) 594-4720  
; INFORMATION FOR SEQ ID NO: 35:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 214 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; US-08-586-039B-35

Query Match 88.6%; Score 101; DB 3; Length 214;  
Best Local Similarity 90.0%; Pred. No. 1.7e-09;  
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGKSHVVKFMDVY 20  
DB 27 APTTEGKSHVVKFMDVY 46

RESULT 8  
US-09-699-769-35  
; Sequence 35, Application US/09699769  
; Patent No. 6569434  
; GENERAL INFORMATION:  
; APPLICANT: Bayne, Marvin L.  
; APPLICANT: Thomas Jr., Kenneth A.  
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR  
; TITLE OF INVENTION: C SUBUNIT  
; NUMBER OF SEQUENCES: 49  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Merck & Co., Inc.  
; STREET: 126 E. Lincoln Avenue  
; CITY: Rahway  
; STATE: New Jersey  
; COUNTRY: USA  
; ZIP: 07065-0900  
; COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Microsoft Word 6  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/09/699,769  
; FILING DATE: 30-Oct-2000  
; CLASSIFICATION: <Unknown>  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 08/586,039  
; FILING DATE: 16-JAN-1996  
; APPLICATION NUMBER: 08/124,259  
; FILING DATE: 20-SEP-1993  
; APPLICATION NUMBER: 07/676,436  
; FILING DATE: 28-MAR-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Hand, J. Mark  
; REGISTRATION NUMBER: 36,545  
; REFERENCE/DOCKET NUMBER: 18361DB  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (732) 594-3905  
; TELEFAX: (732) 594-4720  
; INFORMATION FOR SEQ ID NO: 35:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 214 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; SEQUENCE DESCRIPTION: SEQ ID NO: 35:  
US-09-699-769-35

Query Match 88.6%; Score 101; DB 4; Length 214;  
Best Local Similarity 90.0%; Pred. No. 1.7e-09;  
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGKSHVVKFMDVY 20  
DB 27 APTTEGKSHVVKFMDVY 46

RESULT 9  
US-08-469-427A-15  
; Sequence 15, Application US/08469427A  
; Patent No. 5607918  
; GENERAL INFORMATION:  
; APPLICANT: Eriksson, Ulf  
; APPLICANT: Olofsson, Birgitta  
; APPLICANT: Allitalo, Kari  
; APPLICANT: Pajusola, Katri  
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR-B AND  
; TITLE OF INVENTION: DNA CODING THEREFOR  
; NUMBER OF SEQUENCES: 17  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Evenson, McKeeown, Edwards & Lenahan  
; STREET: 1200 G Street, N.W., Suite 700  
; CITY: Washington  
; STATE: DC  
; ZIP: 20005  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patentin Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/469,427A  
; FILING DATE: 06-JUN-1995  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/397,651  
; FILING DATE: 01-MAR-1995  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Evans, Joseph D

REGISTRATION NUMBER: 26,269  
 REFERENCE/DOCKET NUMBER: 41979CD2  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: (202) 628-8800  
 TELEFAX: (202) 628-8844  
 INFORMATION FOR SEQ ID NO: 15:  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 189 amino acids  
 TYPE: amino acid  
 STRANDEDNESS: single  
 TOPOLOGY: linear  
 MOLECULE TYPE: protein  
 US-08-469-427A-15

Query Match 78.5%; Score 89.5; DB 1; Length 189;  
 Best Local Similarity 95.0%; Pred. No. 1.3e-07;  
 Matches 19; Conservative 0; Mismatches 0; Indels 1; Gaps 1;

QY 1 APTTEGQKSHVVKFMDVY 20  
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 DB 27 APTTEGQKSHVVKFMDVY 45

RESULT 10  
 5194596-11  
 Patent No. 5194596  
 APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN  
 C.; MITCHELL, RICHARD L.  
 TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL  
 GROWTH FACTOR  
 NUMBER OF SEQUENCES: 32  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/07/450,883  
 FILING DATE: 14-DEC-1989  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: 387,545  
 FILING DATE: 27-JUL-1989  
 SEQ ID NO: 11:  
 LENGTH: 21  
 5194596-11

Query Match 71.1%; Score 81; DB 6; Length 21;  
 Best Local Similarity 75.0%; Pred. No. 3e-07;  
 Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVVKFMDVY 20  
 |||||  
 DB 2 APTTEGQKSHVVKFMDVY 21

RESULT 11  
 5219739-11  
 Patent No. 5219739  
 APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,  
 JOHN C.; MITCHELL, RICHARD L.  
 TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGFP120 AND  
 HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN  
 VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGFP120 AND HVEGF121  
 NUMBER OF SEQUENCES: 40  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/07/559,041  
 FILING DATE: 27-JUL-1990  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: 450,883  
 FILING DATE: 14-DEC-1989  
 APPLICATION NUMBER: 387,545  
 FILING DATE: 27-JUL-1989  
 SEQ ID NO: 11:  
 LENGTH: 21  
 5219739-11

Query Match 71.1%; Score 81; DB 6; Length 21;  
 Best Local Similarity 75.0%; Pred. No. 3e-07;

Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;  
 QY 1 APTTEGQKSHVVKFMDVY 20  
 |||||  
 DB 2 APTTEGQKSHVVKFMDVY 21

RESULT 12  
 5332671-14  
 Patent No. 5332671  
 APPLICANT: FERRARA, NAPOLEONE; LEUNG, DAVID W. H.  
 TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL  
 GROWTH FACTOR AND DNA ENCODING SAME  
 NUMBER OF SEQUENCES: 15  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/07/389,722  
 FILING DATE: 04-AUG-1989  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: 369,424  
 FILING DATE: 21-JUN-1989  
 APPLICATION NUMBER: 351,117  
 FILING DATE: 12-MAY-1989  
 SEQ ID NO: 14:  
 LENGTH: 39  
 5332671-14

Query Match 71.1%; Score 81; DB 6; Length 39;  
 Best Local Similarity 75.0%; Pred. No. 6.1e-07;  
 Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVVKFMDVY 20  
 |||||  
 DB 1 APTTEGQKSHVVKFMDVY 20

RESULT 13  
 5194596-21  
 Patent No. 5194596  
 APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN  
 C.; MITCHELL, RICHARD L.  
 TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL  
 GROWTH FACTOR  
 NUMBER OF SEQUENCES: 32  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/07/450,883  
 FILING DATE: 14-DEC-1989  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: 387,545  
 FILING DATE: 27-JUL-1989  
 SEQ ID NO: 21:  
 LENGTH: 41  
 5194596-21

Query Match 71.1%; Score 81; DB 6; Length 41;  
 Best Local Similarity 75.0%; Pred. No. 6.5e-07;  
 Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVVKFMDVY 20  
 |||||  
 DB 1 APTTEGQKSHVVKFMDVY 20

RESULT 14  
 5219739-26  
 Patent No. 5219739  
 APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,  
 JOHN C.; MITCHELL, RICHARD L.  
 TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGFP120 AND  
 HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN  
 VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGFP120 AND HVEGF121  
 NUMBER OF SEQUENCES: 40  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/07/559,041

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; FILING DATE: 27-JUL-1990
;
; PRIOR APPLICATION DATA:
;
; APPLICATION NUMBER: 450,883
;
; FILING DATE: 14-DEC-1989
;
; APPLICATION NUMBER: 387,545
;
; FILING DATE: 27-JUL-1989
;
; SEQ ID NO: 26:
;
; LENGTH: 41
5219739-26

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Query Match	71.1%;	Score 81;	DB 6;	Length 41;
Best Local Similarity	75.0%;	Pred. No. 6.5e-07;		
Matches 15;	Conservative 1;	Mismatches 4;	Indels 0;	Gaps 0;

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Db      1 APMAEGGQKPRHEVVKEMDV 20
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RESULT 15
5194596-9
Patent No. 5194596
APPLICANT: FISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
C.; MITCHELL, RICHARD L.
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
GROWTH FACTOR
NUMBER OF SEQUENCES: 32
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/450,883
FLILING DATE: 14-DEC-1989
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 387,545
FLILING DATE: 27-JUL-1989
SEQ ID NO: 9
LENGTH: 120
5194596-9

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Query Match	71.1%;	Score 81;	DB 6;	Length 120;
Best Local Similarity	75.0%;	Pred. No. 2.2e-06;		
Matches 15;	Conservative 1;	Mismatches 4;	Indels 0;	Gaps 0;

QY 1 APTTEGEQKSHEVIKFMVDY 20  
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Db 1 APMAEGGQKPRHEVVKFMDVY 20

Search completed: January 30, 2004, 11:47:51  
Job time : 8.93846 secs

GenCore version 5.1.6  
Copyright (c) 1993 - 2004 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: January 30, 2004, 11:44:49 ; Search time 20.7846 Seconds  
(without alignments)  
209.978 Million cell updates/sec

Title: US-09-266-543-5

Perfect score: 114  
Sequence: 1 APTTEGQKSHVIFKMDVYC 21

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 789580 seqs, 207824079 residues

Total number of hits satisfying chosen parameters: 789580

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

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18: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	105	92.1	214	9	US-09-349-954A-22
2	105	92.1	214	10	US-09-907-007-22
3	101	88.6	190	12	US-09-921-143-7
4	101	88.6	190	15	US-10-071-370A-2
5	81	71.1	39	15	US-10-166-941-5
6	81	71.1	39	15	US-10-150-046-5
7	81	71.1	39	15	US-10-177-485-5
8	81	71.1	39	15	US-10-155-492-5
9	81	71.1	89	15	US-10-166-941-4
10	81	71.1	89	15	US-10-150-046-4
11	81	71.1	190	15	US-10-177-485-4
12	81	71.1	190	15	US-10-155-492-4
13	80	70.2	25	10	US-09-998-831-11
14	80	70.2	25	10	US-09-998-831-11
15	80	70.2	25	12	US-10-373-561-11

16	80	70.2	25	12	US-10-376-194-1	Sequence 1, Appli
17	80	70.2	25	12	US-10-375-716-30	Sequence 30, Appli
18	68	59.6	14	15	US-10-071-370A-7	Sequence 7, Appli
19	65.5	57.5	26	9	US-09-738-970-2	Sequence 2, Appli
20	65.5	57.5	26	10	US-09-998-851-10	Sequence 10, Appli
21	65.5	57.5	26	12	US-10-373-561-10	Sequence 10, Appli
22	65.5	57.5	26	12	US-10-376-194-2	Sequence 2, Appli
23	65.5	57.5	26	12	US-10-375-716-11	Sequence 31, Appli
24	65.5	57.5	110	9	US-09-832-270-11	Sequence 17, Appli
25	65.5	57.5	110	12	US-10-342-311-17	Sequence 17, Appli
26	65.5	57.5	110	12	US-10-352-931-10	Sequence 10, Appli
27	65.5	57.5	110	12	US-10-392-931-11	Sequence 11, Appli
28	65.5	57.5	110	12	US-10-418-529-10	Sequence 10, Appli
29	65.5	57.5	110	12	US-10-418-529-11	Sequence 11, Appli
30	65.5	57.5	110	14	US-10-083-817-11	Sequence 11, Appli
31	65.5	57.5	110	15	US-10-268-447-11	Sequence 11, Appli
32	65.5	57.5	121	11	US-09-832-355A-1	Sequence 1, Appli
33	65.5	57.5	141	15	US-10-298-794-2	Sequence 2, Appli
34	65.5	57.5	145	12	US-10-319-828-2	Sequence 2, Appli
35	65.5	57.5	145	12	US-10-392-931-4	Sequence 4, Appli
36	65.5	57.5	145	12	US-10-418-529-4	Sequence 4, Appli
37	65.5	57.5	145	14	US-10-083-817-2	Sequence 2, Appli
38	65.5	57.5	145	15	US-10-268-447-4	Sequence 4, Appli
39	65.5	57.5	147	12	US-10-346-802-4	Sequence 4, Appli
40	65.5	57.5	147	12	US-10-392-931-2	Sequence 2, Appli
41	65.5	57.5	147	12	US-10-418-529-2	Sequence 2, Appli
42	65.5	57.5	147	14	US-10-083-817-1	Sequence 1, Appli
43	65.5	57.5	147	15	US-10-268-447-2	Sequence 1, Appli
44	65.5	57.5	150	11	US-09-832-355A-61	Sequence 61, Appli
45	65.5	57.5	154	11	US-09-832-355A-59	Sequence 59, Appli

## ALIGNMENTS

RESULT 1  
US-09-349-954A-22  
Sequence 22, Application US/09349954A  
Patent No. US20020019027A1  
GENERAL INFORMATION:  
APPLICANT: Hayward, Nicholas K.  
APPLICANT: Weber, Gunther  
APPLICANT: Grimmond, Sean  
APPLICANT: No. US20020019027A1denekjold, Magnus  
TITLE OF INVENTION: A NOVEL GROWTH FACTOR AND A GENETIC SEQUENCE ENCODING  
FILE REFERENCE: SAME  
CURRENT APPLICATION NUMBER: US/09/349,954A  
PRIOR APPLICATION NUMBER: 1999-07-08  
PRIOR FILING DATE: 1996-02-22  
NUMBER OF SEQ ID NOS: 22  
SOFTWARE: PatentIn Ver. 2.1  
SEQ ID NO 22  
LENGTH: 214  
TYPE: PRT  
ORGANISM: mVEGF188  
US-09-349-954A-22

Query Match  
Best Local Similarity 92.1%; Score 105; DB 9; Length 214;  
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVIFKMDVY 20  
DB 27 APTTEGQKSHVIFKMDVY 46

RESULT 2  
US-09-907-007-22  
Sequence 22, Application US/09907007  
Patent No. US20020142395A1

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; GENERAL INFORMATION:
; APPLICANT: Hayward, Nicholas K.
; APPLICANT: Weber, Gunther
; APPLICANT: Grimmond, Sean
; APPLICANT: No. US20020142395AIdenskold, Magnus
; APPLICANT: Larsson, Catharina
; TITLE OF INVENTION: A NOVEL GROWTH FACTOR AND A GENETIC SEQUENCE ENCODING
; FILE REFERENCE: SAME
; CURRENT APPLICATION NUMBER: US/09/907,007
; CURRENT FILING DATE: 2001-07-17
; PRIOR APPLICATION NUMBER: 08/765,588
; PRIOR FILING DATE: 1996-02-22
; NUMBER OF SEQ ID NOS: 22
; SOFTWARE: Patent In Ver. 2.1
; SEQ ID NO 22
; LENGTH: 214
; TYPE: PRT
; ORGANISM: mVEGF188
US-09-907-007-22

Query Match          92.1%; Score 105; DB 10; Length 214;
Best Local Similarity 100.0%; Pred. No. 4.4e-09;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGEOKSHVIFKMDY 20
DB 27 APTTEGEOKSHVIFKMDY 46

RESULT 3
US-09-921-143-7
; Sequence 7, Application US/09921143
; Publication No. US20030215921A1
; GENERAL INFORMATION:
; APPLICANT: Coleman, Timothy
; TITLE OF INVENTION: Vascular Endothelial Growth Factor-2
; FILE REFERENCE: P0112P6
; CURRENT APPLICATION NUMBER: US/09/921,143
; CURRENT FILING DATE: 2001-08-03
; PRIOR APPLICATION NUMBER: 60/223,276
; PRIOR FILING DATE: 2000-08-04
; NUMBER OF SEQ ID NOS: 36
; SOFTWARE: Patent In version 3.0
; SEQ ID NO 7
; LENGTH: 190
; TYPE: PRT
; ORGANISM: homo sapiens
US-09-921-143-7

Query Match          88.6%; Score 101; DB 12; Length 190;
Best Local Similarity 90.0%; Pred. No. 1.7e-08;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGEOKSHVIFKMDY 20
DB 27 APTTEGEOKSHVIFKMDY 46

RESULT 4
US-10-071-370A-2
; Sequence 2, Application US/10071370A
; Publication No. US20030045471A1
; GENERAL INFORMATION:
; APPLICANT: Bayne, Marvin L.
; APPLICANT: Conn, Gregory L.
; APPLICANT: Thomas, Jr., Kenneth A.
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR
; FILE REFERENCE: 18199CB
; CURRENT APPLICATION NUMBER: US/10/071,370A
; CURRENT FILING DATE: 2002-02-08
; PRIOR APPLICATION NUMBER: 09/326,879
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; PRIOR FILING DATE: 1999-06-07
; PRIOR APPLICATION NUMBER: 09/038,199
; PRIOR FILING DATE: 1998-03-10
; PRIOR APPLICATION NUMBER: 08/299,185
; PRIOR FILING DATE: 1994-08-31
; PRIOR APPLICATION NUMBER: 08/000,834
; PRIOR FILING DATE: 1993-01-05
; PRIOR APPLICATION NUMBER: 07/586,638
; PRIOR FILING DATE: 1990-09-21
; NUMBER OF SEQ ID NOS: 29
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 2
; LENGTH: 190
; TYPE: PRT
; ORGANISM: rat
US-10-071-370A-2

Query Match          88.6%; Score 101; DB 15; Length 190;
Best Local Similarity 90.0%; Pred. No. 1.7e-08;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGEOKSHVIFKMDY 20
DB 27 APTTEGEOKSHVIFKMDY 46

RESULT 5
US-10-166-941-5
; Sequence 5, Application US/10166941
; Publication No. US20030092617A1
; GENERAL INFORMATION:
; APPLICANT: Ferrara, Napoleone
; APPLICANT: Leung, David Wai-Hung
; TITLE OF INVENTION: Production of Vascular Endothelial Cell Growth Factor
; FILE REFERENCE: P0586C8
; CURRENT APPLICATION NUMBER: US/10/166,941
; CURRENT FILING DATE: 2002-06-10
; PRIOR APPLICATION NUMBER: US 08/904,334
; PRIOR FILING DATE: 1997-07-31
; PRIOR APPLICATION NUMBER: US 08/561,560
; PRIOR FILING DATE: 1995-11-22
; PRIOR APPLICATION NUMBER: US 08/306,213
; PRIOR FILING DATE: 1994-09-14
; PRIOR APPLICATION NUMBER: US 08/047,756
; PRIOR FILING DATE: 1993-04-15
; PRIOR APPLICATION NUMBER: US 07/351,117
; PRIOR FILING DATE: 1989-05-12
; NUMBER OF SEQ ID NOS: 9
; SEQ ID NO 5
; LENGTH: 39
; TYPE: PRT
; ORGANISM: Bovine
US-10-166-941-5

Query Match          71.1%; Score 81; DB 15; Length 39;
Best Local Similarity 75.0%; Pred. No. 5.5e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGEOKSHVIFKMDY 20
DB 1 APTTEGEOKSHVIFKMDY 20

RESULT 6
US-10-150-046-5
; Sequence 5, Application US/10150046
; Publication No. US20030100072A1
; GENERAL INFORMATION:
; APPLICANT: Ferrara, Napoleone
; APPLICANT: Leung, David Wai-Hung
; TITLE OF INVENTION: Production of Vascular Endothelial Cell Growth Factor
; FILE REFERENCE: and DNA Encoding Same
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FILE REFERENCE: P0586C7
CURRENT APPLICATION NUMBER: US/10/150,046
CURRENT FILING DATE: 2002-08-26
PRIOR APPLICATION NUMBER: US 08/978,791-
PRIOR FILING DATE: 1997-11-26
PRIOR APPLICATION NUMBER: US 08/749,710
PRIOR FILING DATE: 1996-11-15
PRIOR APPLICATION NUMBER: US 08/459,385
PRIOR FILING DATE: 1995-06-02
PRIOR APPLICATION NUMBER: US 08/306,213
PRIOR FILING DATE: 1994-09-14
PRIOR APPLICATION NUMBER: US 08/047,756
PRIOR FILING DATE: 1993-04-14
PRIOR APPLICATION NUMBER: US 07/351,117
PRIOR FILING DATE: 1989-05-12
NUMBER OF SEQ ID NOS: 9
SEQ ID NO 5
LENGTH: 39
TYPE: PRT
ORGANISM: Bovine
US-10-150-046-5
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Query Match 71.1%; Score 81; DB 15; Length 39;
Best Local Similarity 75.0%; Pred. No. 5.5e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;
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OY 1 APTTEGQKSHVVKFMDVY 20
Db 1 APMAEGGQKPHVVKFMDVY 20
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RESULT 7
US-10-177-485-5
Sequence 5, Application US/10177485
Publication No. US20030108989A1
GENERAL INFORMATION:
APPLICANT: Ferrara, Napoleone
TITLE OF INVENTION: Production of Vascular Endothelial Cell Growth Factor
TITLE OF INVENTION: and DNA Encoding Same
FILE REFERENCE: P0586P1C9
CURRENT APPLICATION NUMBER: US/10/177,485
CURRENT FILING DATE: 2002-06-20
PRIOR APPLICATION NUMBER: US 08/979,105
PRIOR FILING DATE: 1997-11-26
PRIOR APPLICATION NUMBER: US 08/749,709
PRIOR FILING DATE: 1996-11-15
PRIOR APPLICATION NUMBER: US 08/460,370
PRIOR FILING DATE: 1995-06-02
PRIOR APPLICATION NUMBER: US 08/410,378
PRIOR FILING DATE: 1995-03-27
PRIOR APPLICATION NUMBER: US 08/062,489
PRIOR FILING DATE: 1993-05-13
PRIOR APPLICATION NUMBER: US 07/772,399
PRIOR FILING DATE: 1991-10-07
PRIOR APPLICATION NUMBER: US 07/369,424
PRIOR FILING DATE: 1989-06-21
PRIOR APPLICATION NUMBER: US 07/351,117
PRIOR FILING DATE: 1989-05-12
NUMBER OF SEQ ID NOS: 9
SEQ ID NO 5
LENGTH: 39
TYPE: PRT
ORGANISM: Bovine
US-10-177-485-5
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Query Match 71.1%; Score 81; DB 15; Length 39;
Best Local Similarity 75.0%; Pred. No. 5.5e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;
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OY 1 APTTEGQKSHVVKFMDVY 20
Db 1 APMAEGGQKPHVVKFMDVY 20
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RESULT 8
US-10-155-492-5
Sequence 5, Application US/10155492
Publication No. US20030114374A1
GENERAL INFORMATION:
APPLICANT: Ferrara, Napoleone
TITLE OF INVENTION: Production of Vascular Endothelial Cell Growth Factor
TITLE OF INVENTION: and DNA Encoding Same
FILE REFERENCE: P0586P1C8
CURRENT APPLICATION NUMBER: US/10/155,492
CURRENT FILING DATE: 2002-05-24
PRIOR APPLICATION NUMBER: US 08/901,544
PRIOR FILING DATE: 1997-07-28
PRIOR APPLICATION NUMBER: US 08/694,809
PRIOR FILING DATE: 1996-08-09
PRIOR APPLICATION NUMBER: US 08/410,378
PRIOR FILING DATE: 1995-03-27
PRIOR APPLICATION NUMBER: US 08/062,489
PRIOR FILING DATE: 1993-05-13
PRIOR APPLICATION NUMBER: US 07/772,399
PRIOR FILING DATE: 1991-10-07
PRIOR APPLICATION NUMBER: US 07/369,424
PRIOR FILING DATE: 1989-06-21
PRIOR APPLICATION NUMBER: US 07/351,117
PRIOR FILING DATE: 1989-05-12
NUMBER OF SEQ ID NOS: 9
SEQ ID NO 5
LENGTH: 39
TYPE: PRT
ORGANISM: Bovine
US-10-155-492-5
```

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Query Match 71.1%; Score 81; DB 15; Length 39;
Best Local Similarity 75.0%; Pred. No. 5.5e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;
```

```
OY 1 APTTEGQKSHVVKFMDVY 20
Db 1 APMAEGGQKPHVVKFMDVY 20
```

```
RESULT 9
US-10-166-941-4
Sequence 4, Application US/10166941
Publication No. US20030092617A1
GENERAL INFORMATION:
APPLICANT: Ferrara, Napoleone
TITLE OF INVENTION: Production of Vascular Endothelial Cell Growth Factor
TITLE OF INVENTION: and DNA Encoding Same
FILE REFERENCE: P0586C8
CURRENT APPLICATION NUMBER: US/10/166,941
CURRENT FILING DATE: 2002-06-10
PRIOR APPLICATION NUMBER: US 08/904,334
PRIOR FILING DATE: 1997-07-31
PRIOR APPLICATION NUMBER: US 08/561,560
PRIOR FILING DATE: 1995-11-22
PRIOR APPLICATION NUMBER: US 08/306,213
PRIOR FILING DATE: 1994-09-14
PRIOR APPLICATION NUMBER: US 08/047,756
PRIOR FILING DATE: 1993-04-15
PRIOR APPLICATION NUMBER: US 07/351,117
PRIOR FILING DATE: 1989-05-12
NUMBER OF SEQ ID NOS: 9
SEQ ID NO 4
LENGTH: 89
TYPE: PRT
ORGANISM: Bovine
US-10-166-941-4
```

```
OY 1 APTTEGQKSHVVKFMDVY 20
Db 1 APMAEGGQKPHVVKFMDVY 20
```

Query Match	71.1%;	Score 81;	DB 15;	Length 89;
Best Local Similarity	75.0%;	Pred. No. 1.4e-05;		
Matches 15; Conservative	1;	Mismatches 4;	Indels 0;	Gaps 0;

```

QY      1 APTTEGEQKSHVEVIKFM D VY 20
          || || || || || || || ||
Db     27 APM AEGGQK PHEVVK FMD VY 46

```

RESULT 10  
US-10-150-046-4

Query Match	71.1%	Score 81	DB 15	Length 89
Best Local Similarity	75.0%	Pred. No. 1.4e-05		
Matches 15, Conservative		1	Mismatches 4	Indels 0
				Gaps 0

QY 1 APTTEGEQKSHVIKMDVY 20  
||| ||| : |||||  
Db 27 APMAEGGQKPHVVKMDVY 46

```

1 RESULT 11
2 US-10-177-485-4
3 ; Sequence 4, Application US/10177485
4 ; Publication No. US20030108989A1
5 ; GENERAL INFORMATION:
6 ; APPLICANT: Ferrara, Napoleone
7 ; APPLICANT: Leung, David Wai-Hung
8 ; TITLE OF INVENTION: Production of Vascular Endothelial Cell Growth Factor
9 ; TITLE OF INVENTION: and DNA Encoding Same
10 FILE REFERENCE: P0586P1C9
11 CURRENT APPLICATION NUMBER: US/10/177,485
12 CURRENT FILING DATE: 2002-06-20
13 PRIOR APPLICATION NUMBER: US 08/979,105
14 PRIOR FILING DATE: 1997-11-26
15 PRIOR APPLICATION NUMBER: US 08/749,709
16 PRIOR FILING DATE: 1996-11-15
17 PRIOR APPLICATION NUMBER: US 08/460,370
18 PRIOR FILING DATE: 1995-06-02
19 PRIOR APPLICATION NUMBER: US 08/410,378
20 PRIOR FILING DATE: 1995-03-27
21 PRIOR APPLICATION NUMBER: US 08/062,489
22 PRIOR FILING DATE: 1993-05-13
23 PRIOR APPLICATION NUMBER: US 07/772,399
24 PRIOR FILING DATE: 1991-10-07

```

```

: PRIOR APPLICATION NUMBER: US 07/369,424
: PRIOR FILING DATE: 1989-06-21
: PRIOR APPLICATION NUMBER: US 07/351,117
: PRIOR FILING DATE: 1989-05-12
: NUMBER OF SEQ ID NOS: 9

```

```

; TYPE: PRT
; ORGANISM: Bovine
US-10-177-485-4

```

Query Match	71.1%;	Score 81;	DB 15;	length 190;
Best Local Similarity	75.0%;	Pred. No. 3.2e-05;		
Matches 15;	Conservative 1;	Mismatches 4;	Indels 0;	Gaps 0;

QY 1 APTTEGEQKSHVEIKFMDV 20  
|||:|||||  
Db 27 APMAEGGQKPHVEVKFMDV 46

```

RESULT 12
US-10-155-492-4
Sequence 4, Application US/10155492
Publication No. US20030114374A1
GENERAL INFORMATION:
APPLICANT: Ferrara, Napoleone
APPLICANT: Leung, David Wai-Hung
TITLE OF INVENTION: Production of Vascular Endothelial Cell Growth Factor
FILE REFERENCE: P0586P1C8
CURRENT APPLICATION NUMBER: US/10/155,492
CURRENT FILING DATE: 2002-05-24
PRIOR APPLICATION NUMBER: US 08/901,544
PRIOR FILING DATE: 1997-07-28
PRIOR APPLICATION NUMBER: US 08/694,809
PRIOR FILING DATE: 1996-08-09
PRIOR APPLICATION NUMBER: US 08/410,378
PRIOR FILING DATE: 1995-03-27
PRIOR APPLICATION NUMBER: US 08/062,489
PRIOR FILING DATE: 1993-05-13
PRIOR APPLICATION NUMBER: US 07/772,399
PRIOR FILING DATE: 1991-10-07
PRIOR APPLICATION NUMBER: US 07/369,424
PRIOR FILING DATE: 1989-06-21
PRIOR APPLICATION NUMBER: US 07/351,117
PRIOR FILING DATE: 1989-05-12
NUMBER OF SEQ ID NOS: 9
SEQ ID NO 4
LENGTH: 190
TYPE: PRT
ORGANISM: Bovine
US-10-155-492-4

Query Match          71.1%; Score 81; DB 15; Length 190;
Best Local Similarity 75.0%; Pred. No. 3,2e-05;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps

Oy      1 APTTEGGOKSHEVIEKEMDVY 20
        |||||...|||||
Ob      27 APWABGQKPEHVAKEMDVY 46

RESULT 13
US-09-738-970-1
Sequence 1, Application US/09738970
Patent No. US20020037289A1
GENERAL INFORMATION:
APPLICANT: Thorpe, Philip E.
APPLICANT: Burrows, Francis J.
TITLE OF INVENTION: Methods and Compositions for Targeting
TITLE OF INVENTION: the Vasculature of Solid Tumors
NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:

```

Query Match	71.1%;	Score 81;	DB 15;	Length 190;
Best Local Similarity	75.0%;	Pred. No. 3.2e-05;		
Matches 15;	Conservative 1;	Mismatches 4;	Indels 0;	Gaps 0;

Qy 1 APTTEGEQKSHEVIKFMdVY 20  
||| | | | | | | | | |  
Db 27 APMAEGGQKPRHEVVKFMdVY 46

RESULT 13  
 US-09-738-970-1  
 ; Sequence 1, Application US/09738970  
 ; Patent No. US20020037289A1  
 ;  
 ; GENERAL INFORMATION:  
 ;  
 ; APPLICANT: Thorpe, Philip E.  
 ; APPLICANT: Burrows, Francis J.  
 ; TITLE OF INVENTION: Methods and Compositions for Targeting  
 ; TITLE OF INVENTION: the Vasculature of Solid Tumors  
 ; NUMBER OF SEQUENCES: 3  
 ;  
 ; CORRESPONDENCE ADDRESS:  
 ;



ADDRESSEE: Arnold, White & Durkee  
STREET: P.O. Box 4433  
CITY: Houston  
STATE: Texas  
COUNTRY: United States of America  
ZIP: 77210  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS/ASCII  
SOFTWARE: Patentin Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/738,970  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 09/207,277  
FILING DATE:  
CLASSIFICATION:  
APPLICATION NUMBER: SN 07/846,349  
FILING DATE: March 5, 1992  
CLASSIFICATION:  
ATTORNEY/AGENT INFORMATION:  
NAME: Parker, David L.  
REGISTRATION NUMBER: 32,165  
REFERENCE/DOCKET NUMBER: UTSD:430/PAR  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (512) 418-3000  
TELEFAX: (713) 789-2679  
TELEX: 79-0924  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 25 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: Peptide  
US-09-738-970-1

Query Match 70.2%; Score 80; DB 9; Length 25;  
Best Local Similarity 75.0%; Pred. No. 4.8e-06;

Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Qy 1 APTTEGEOKSHVIRKFMVY 20  
Db 1 APMAEGEOKPREVVKFMVY 20

RESULT 14  
US-09-998-831-11

Sequence 11, Application US/09998831  
Patent No. US20020119153A1  
GENERAL INFORMATION:  
APPLICANT: Phillip E. Thorpe  
APPLICANT: Rolf A. Brekken  
TITLE OF INVENTION: ANTIBODY CONJUGATE COMPOSITIONS FOR SELECTIVELY  
INHIBITING VEGF  
FILE REFERENCE: 4001.002584  
CURRENT APPLICATION NUMBER: US/09/998,831  
CURRENT FILING DATE: 2001-11-30  
PRIOR APPLICATION NUMBER: 09/561,108  
PRIOR FILING DATE: 2000-04-28  
NUMBER OF SEQ ID NOS: 44  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 11  
LENGTH: 25  
TYPE: PRT  
ORGANISM: Artificial Sequence

FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: SYNTHETIC  
OTHER INFORMATION: PEPTIDE  
US-09-998-831-11

Query Match 70.2%; Score 80; DB 10; Length 25;  
Best Local Similarity 75.0%; Pred. No. 4.8e-06;  
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Qy 1 APTTEGEOKSHVIRKFMVY 20  
Db 1 APMAEGEOKPREVVKFMVY 20

RESULT 15  
US-10-373-561-11

Sequence 11, Application US/10373561  
Publication No. US20030175276A1  
GENERAL INFORMATION:  
APPLICANT: Phillip E. Thorpe  
APPLICANT: Rolf A. Brekken  
TITLE OF INVENTION: ANTIBODY METHODS FOR SELECTIVELY INHIBITING VEGF  
FILE REFERENCE: 4001.002582  
CURRENT APPLICATION NUMBER: US/10/373,561  
CURRENT FILING DATE: 2003-02-24  
PRIOR APPLICATION NUMBER: US/09/561,499  
PRIOR FILING DATE: 2000-04-28  
PRIOR APPLICATION NUMBER: 60/131,432  
PRIOR FILING DATE: 1999-04-28  
NUMBER OF SEQ ID NOS: 44  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 11  
LENGTH: 25  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: SYNTHETIC  
OTHER INFORMATION: PEPTIDE  
US-10-373-561-11

Query Match 70.2%; Score 80; DB 12; Length 25;  
Best Local Similarity 75.0%; Pred. No. 4.8e-06;

Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Qy 1 APTTEGEOKSHVIRKFMVY 20  
Db 1 APMAEGEOKPREVVKFMVY 20

Search completed: January 30, 2004, 12:15:01  
Job time : 20.9096 Secs



GenCore version 5.1.6  
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OM protein - protein search, using SW model

Run on: January 30, 2004, 11:34:23 : Search time 9.04615 Seconds  
(without alignments)  
223.249 Million cell updates/sec

Title: US-09-266-543-5  
Perfect score: 114  
Sequence: 1 APTTEGQKSHVIFKFMVYC 21

Scoring table: BLOSUM62  
Gapop 10.0, Gapext 0.5

Searched: 283308 seqs, 96168682 residues

Total number of hits satisfying chosen parameters: 283308

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :  
1: p1r1:\*  
2: p1r2:\*  
3: p1r3:\*  
4: p1r4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	105	92.1	190	B44881	vascular endotheli
2	105	92.1	214	A44881	vascular endotheli
3	101	86.6	190	A35987	glioma-derived vas
4	85	74.6	190	S52130	vascular endotheli
5	81	71.1	120	A33787	vascular endotheli
6	81	71.1	190	B40080	vascular endotheli
7	80	70.2	36	A60706	vascular endotheli
8	79	69.3	146	S57956	ovine vascular end
9	65.5	57.5	232	A41551	vascular endotheli
10	47.5	41.7	360	T20686	hypothetical prote
11	46	40.4	436	T00756	hypothetical prote
12	46	40.4	272	T18572	hypothetical prote
13	44	38.6	113	G96942	gag, pol and env p
14	44	38.6	172	C95090	hypothetical prote
15	44	38.6	172	P97957	16S rRNA processin
16	44	38.6	180	T34851	probable secreted
17	44	38.6	248	AC1919	hypothetical prote
18	44	38.6	405	T40193	hypothetical prote
19	44	38.6	1131	A49393	activator 1 large
20	43	37.7	278	A81266	probable biotin sy
21	43	37.7	285	AE3112	panthothenate synth
22	43	37.7	332	E63112	nitrate reductase
23	43	37.7	360	T08673	hypothetical prote
24	43	37.7	463	A56888	H+-symporter homol
25	43	37.7	574	S50800	probable membrane
26	43	37.7	646	G84854	hypothetical prote
27	43	37.7	1166	P90247	reverse gyrase (to
28	43	37.7	1166	T29099	reverse gyrase - S
29	42.5	37.3	314	T24515	hypothetical prote

30	42.5	37.3	896	2	S48761	trehalose-phosphat
31	42.5	37.3	1265	2	T06916	DNA-directed RNA p
32	42	36.8	84	2	S35758	ribosomal protein
33	42	36.8	151	2	H84425	hypothetical prote
34	42	36.8	365	2	A71005	probable cell divi
35	42	36.8	379	2	I40873	serine proteinase
36	42	36.8	485	2	P96526	hypothetical prote
37	42	36.8	610	2	T20735	hypothetical prote
38	42	36.8	888	2	S50801	AMP deaminase homo
39	42	36.8	917	2	B96699	probable lipoxigen
40	42	36.8	3268	2	S69625	hypothetical prote
41	41.5	36.4	346	2	T19676	hypothetical prote
42	41	36.0	84	1	R3RT27	ribosomal protein
43	41	36.0	315	2	H82062	sulfate adenylate
44	41	36.0	318	2	AR0557	cytochrome o ubiqu
45	41	36.0	332	1	A55897	prolactin-induced

## ALIGNMENTS

RESULT 1  
B44881  
vascular endothelial growth factor-1 precursor - mouse  
C:Date: 03-Feb-1994 #sequence revision 03-Feb-1994 #text\_change 05-Nov-1999  
C:Accession: B44881; A43351; A61029  
R:Bretter, G.; Albrecht, U.; Sterrer, S.; Rissau, W.  
Development 114, 521-532, 1992  
A>Title: Expression of vascular endothelial growth factor during embryonic angiogenesis  
A:Reference number: A44881; MUID:92274860; PMID:1592003  
A:Accession: B44881  
A:Molecule type: mRNA  
A:Residues: 1-190 <BR>  
A:Cross-references: GB:S38083; NID:G249858; PIDN:AAB2253.1; PID:G249859  
A:Experimental source: embryo  
A:Note: sequence extracted from NCBI backbone (NCBIN:107622, NCBI:P:107623)  
R:Claffey, K.P.; Wilkison, W.O.; Spiegelman, B.M.  
J. Biol. Chem. 267, 16317-16322, 1992  
A>Title: Vascular endothelial growth factor. Regulation by cell differentiation and acti  
A:Reference number: A43351; MUID:92355593; PMID:1644816  
A:Accession: A43351  
A:Molecule type: mRNA  
A:Residues: 1-116, 'ER', 119-190 <CLA>  
A:Cross-references: GB:M95200; NID:G202350; PIDN:AAA40547.1; PID:G202351  
A:Note: sequence extracted from NCBI backbone (NCBIN:110665, NCBI:P:110675)  
R:Rosenblatt, R.A.; Megyesi, J.F.; Henzel, W.J.; Ferrara, N.; Folkman, J.  
Growth Factors 4, 53-59, 1990  
A>Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelial g  
A:Reference number: A61029; MUID:91197543; PMID:2085441  
A:Accession: A61029  
A:Molecule type: protein  
A:Keywords: 27-38 <R08>  
A:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein; mit

Query Match 92.1%; Score 105; DB 2; Length 190;  
Best Local Similarity 100.0%; Pred. NO. 1.1e-09;  
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 APTTEGQKSHVIFKFMVY 20  
Db 27 APTTEGQKSHVIFKFMVY 46

RESULT 2  
A44881  
vascular endothelial growth factor-3 precursor - mouse  
N:Contains: vascular endothelial growth factor-2; vascular permeability factor  
C:Species: Mus musculus (house mouse)  
C:Date: 03-Feb-1994 #sequence revision 03-Feb-1994 #text\_change 08-Oct-1999  
C:Accession: A44881; A44881; A60933; S52136  
R:Bretter, G.; Albrecht, U.; Sterrer, S.; Rissau, W.  
Development 114, 521-532, 1992

Query Match	92.1%	Score 105	DB 2	Length 214
Best Local Similarity	100.0%	Pred. NO.	1.3e-09	
Matches 20	Conservative 0	Mismatches 0	Indels 0	Gaps 0

Qy	1	APTEGEOKSHVIRKEMDVY	20
Db	27	APTEGEOKSHVIRKEMDVY	46

Query Match	88.6%	Score 101	DB 2	Length 190
Best Local Similarity	90.0%	Pred. No. 5.2e-09		
Matches 18; Conservative	2	Mismatches 0	Indels 0	Gaps 0

Qy	1	A	P	T	T	E	G	E	O	K	S	H	E	V	I	K	E	N	D	V	20
Db	27	A	P	T	T	E	G	E	O	K	A	H	E	V	I	K	E	N	D	V	46

RESULT 4  
S52130  
vascular endothelial growth factor - pig  
C:Species: Sus scrofa domestica (domestic pig)  
C:Date: 14-Jul-1995 #sequence\_revision 21-Jul-1995 #next\_change 05-Nov-1995  
C:Accession: S52130

Query Match	74.6%	Score 85	DB 2	Length 190
Best Local Similarity	75.0%	Pred. No.	2.3e-06	
Matches 15	Conservative	2	Mismatches 3	Indels 0
				Gaps 0

QY		1	A P T T E G E Q K S H E V I K F M D Y	20
			:	
			:	
Db		27	A P A M E G D Q K P H E V V K F M D Y	46

Query Match	71.1%	Score 81;	DB 2;	Length 120;
Best Local Similarity	75.0%	Pred. No. 6.4e-06;		
Matches 15; Conservative	1;	Mismatches 4;	Indels 0;	Gaps 0

**Qy**           **1** APTTEGGEOKSHEVTKEMDIVY 20  
               | | | | : | | | |  
**Dib**          **1** APMAEGGGCKPHEVVKEMDIVY 20

A: molecule type: mRNA  
A: Residues: 1-190 <LEU>  
A: Cross-references: GB:M32976; NID:q163006; PIDN:AAA0502.1; PID:q163007

A:Reference number:A33787; MWID:90121225; PMID:2610667  
A>Title: Vascular endothelial growth factor: a new member of the platelet-derived

A:Accession: B33787  
A:Molecule type: mRNA  
A:Residues: 27-190 (<TIS>  
A:Cross-references: GR\_M31816: NTD:Q1613808: PTDN:AAA30804.1: PID:Q163809

**A1:** Title: Pituitary follicular cells secrete a novel heparin-binding growth factor spectrally related to *h-neurexin*, *N.O. Blochem. Biophys. Res. Commun.* 161, 851-858, 1989  
**A2:** Title: Pituitary follicular cells secrete a novel heparin-binding growth factor spectrally related to *h-neurexin*, *N.O. Blochem. Biophys. Res. Commun.* 161, 851-858, 1989  
**A3:** Reference number: A33255; PMID:2735925  
**A4:** Accession: A33255  
**A5:** Molecule type: protein



A:Reference number: A34492; MUID:90062112; PMID:2584205  
A:Accession: A34492  
A:Molecule type: protein  
A:Residues: 27-36/43-59, R', 72-76, 'Q', 78-81, 59-71 <CON>  
C:Comment: The most common of several alternatively spliced forms is VEGF 165.  
C:Genetics:  
A:Gene: GDB:VEGF  
A:Cross-references: GDB:132244; OMIM:192240  
A:Map position: 6p21-6p12  
C:function:  
A:description: promotes fluid and protein leakage from blood vessels  
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; extracellular protease  
F:1-332/Product: vascular endothelial growth factor 206 precursor #status predicted <V206>  
F:1-165, 183-233/Product: vascular endothelial growth factor 189 precursor #status predicted  
F:1-141, 227-232/Product: vascular endothelial growth factor 121 precursor #status predicted  
F:1-26/Domain: signal sequence #status predicted <Sig>  
F:101/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 57.5% Score 65.5; DB 2; Length 232;  
Best Local Similarity 66.7% Pred. No. 0.0047;  
Matches 14; Conservative 1; Mismatches 5; Indels 1; Gaps 1;

RESULT 10  
T20686  
hypotheoretical protein F10A3.13 - Caenorhabditis elegans  
C:Species: Caenorhabditis elegans  
C:Date: 15-Oct-1999 #sequence\_revision 15-Oct-1999 #text\_change 15-Oct-1999  
C:Accession: T20686  
R:Lloyd, C.  
submitted to the EMBL Data Library, March 1997  
A:Reference number: Z19309  
A:Accession: T20686  
A:Status: preliminary; translated from GB/EMBL/DBD  
A:Molecule type: DNA  
A:Residues: 1-360 <MWL>  
A:Cross-references: EMBL:Z92829; PIDN:CAB07349.1; GSPDB:GN00023; CESP:F10A3.13  
A:Experimental source: clone F10A3  
C:Genetics:  
A:Gene: CESP:F10A3.13  
A:Map position: 5  
A:introns: 66/3; 96/1

Query Match 41.7% Score 47.5; DB 2; Length 360;  
Best Local Similarity 62.5% Pred. No. 7.1;  
Matches 10; Conservative 2; Mismatches 3; Indels 1; Gaps 1;

QY 7 EOKSHEVI-KEMDVYC 21  
DB 160 EMKOEVIPEFLDYVC 175

RESULT 11  
T00756  
hypotheoretical protein At2g40920 (imported) - Arabidopsis thaliana  
N:Alternate names: hypotheoretical protein T0085.12  
C:Species: Arabidopsis thaliana (mouse-ear cress)  
C:Date: 12-Feb-1999 #sequence\_revision 12-Feb-1999 #text\_change 16-Feb-2001  
C:Accession: T00756; E84835  
R:Rounsley, S.D.; Lin, X.; Ketchum, K.A.; Crosby, M.L.; Brandon, R.C.; Sykes, S.M.; Kaul  
submitted to the EMBL Data Library, November 1997  
A:description: Arabidopsis thaliana chromosome II BAC T20B5 genomic sequence.  
A:Reference number: Z14159  
A:Accession: T00756  
A:Status: translated from GB/EMBL/DBD  
A:Molecule type: DNA  
A:Residues: 1-436 <ROU>  
A:Cross-references: EMBL:AC002409; NID:g2623294; PID:g2623306  
A:Experimental source: cultivar Columbia

```

Ox      1  APTTEGEQKSHSEVVKFM 17
      ||:|||||:|::|
Db      253  APTTEGRSTSGSVVRVM 269

Query Match      40.4%; Score 46; DB 2; Length 436;
Best Local Similarity 47.1%; Pred. No. 15;
Matches 8; Conservative 4; Mismatches 5; Indels 0; Gaps 0;

A:Gene: T20B5.12; At2g40920
A:Map position: 2
A:introns: 35/3

A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-436 <STO>
A:Cross-references: GB:AE002093; NID:G2623306; PIDN:AAB86452.1; GSPDB:GN00139
C:Genetics:
A:Reference number: A84420; MUID:20083487; PMID:10617197
A:Accession: BB4835

Rilling, X.; Kaul, S.; Rounsley, S.D.; Shee, T.P.; Benito, M.I.; Town, C.D.; Fujii, C.Y.;
M.; Koo, H.; Moffatt, K.S.; Cronin, L.A.; Shen, M.; Vanaken, S.E.; Umayam, L.; Tallon, E.;
eues, D.; Nierman, W.C.; White, O.; Eisen, J.A.; Salzberg, S.L.; Fraser, C.M.; Venter, J.
Native 402, 761-768, 1999
A:Title: Sequence and analysis of chromosome 2 of the plant Arabidopsis thaliana.
A:Reference number: A84420; MUID:20083487; PMID:10617197
A:Accession: BB4835
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-436 <STO>
A:Cross-references: GB:AE002093; NID:G2623306; PIDN:AAB86452.1; GSPDB:GN00139
C:Genetics:
A:Gene: T20B5.12; At2g40920
A:Map position: 2
A:introns: 35/3

```

```

RESULT 12
T18572
gag, pol and env protein precursor - Caenorhabditis elegans
C|Species: Caenorhabditis elegans
C|Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 15-Oct-1999
C|Accession: T18572
R|Britten, R.
submitted to the EMBL Data Library, September 1994
A|Reference number: Z18980
A|Accession: T18572
A|Status: preliminary; translated from GB/EMBL/DDBJ
A|Molecule type: DNA
A|Residues: 1-2272 <MIL>
A|Cross-references: EMBL:U15406; PIDDN:AAA50456.1

```

	Query Match	Score	DB	Length
Best Local Similarity	40.4%	46	2	2272
Matches	53.3%	Pred. No.	90	
Conservative	3	Mismatches	4	Indels
			0	Gaps
			0	

**RESULT 13**  
 G96942  
 Hypothetical protein CAC0350 [imported] - Clostridium acetobutylicum  
 C|Species: Clostridium acetobutylicum  
 C|Date: 14-Sep-2001 #sequence\_revision 14-Sep-2001 #text\_change 14-Sep-2001  
 C|Accession: G96942  
 R|Nolling, J.; Britton, G.; Omelchenko, M.V.; Markarova, K.S.; Zeng, Q.; Gibson, R.; Lee, J.; Daly, M.J.; Bennett, G.N.; Koonin, E.V.; Smith, D.R.  
 J. Bacteriol. 183, 4823-4838, 2001  
 A|Title: Genome Sequence and Comparative Analysis of the Solvent-Producing Bacterium C|  
 A|Reference number: A96900; MUID:21359325; PMID:21359325  
 A|Accession: G96942  
 A|Status: Preliminary  
 A|Molecule type: DNA  
 A|Residues: 1-113 <KIR>  
 A|Cross-references: A|E001437; PIDN:AAK78330.1; PID:G15023196; GSPDB:GNO0168  
 A|Experimental source: Clostridium acetobutylicum ATCC824  
 C|Genetics:  
 A|Gene: CAC0350  
  
 Query Match 38.6%; Score 44; DB 2; Length 113;  
 Best Local Similarity 50.0%; Pred. No. 7 7;  
 Matches 7; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

```
QY      7 EQKSHEVIKFMdVY 20
          : | | : | | | |
Db      44 DDKGFETVMFMdVY 57
```

RESULT 14

C950090  
16S rRNA processing protein RimM [imported] - Streptococcus pneumoniae (strain TIGR4)  
C:Species: Streptococcus pneumoniae  
C:Date: 03-Aug-2001 #sequence\_revision 03-Aug-2001 #text\_change 01-Mar-2002  
C:Accession: C950090  
R:Retainin, H.; Nelson, K.E.; Paulsen, I.T.; Eisen, J.A.; Read, T.D.; Peterson, S.; Heid  
on, J.D.; Umayam, L.A.; White, O.; Salzberg, S.L.; Lewis, M.R.; Radune, D.; Holtzapple,  
nson, T.; Hickey, E.K.; Holt, I.E.  
Science 293, 498-506, 2001  
A:Authors: Loftus, B.J.; Yang, F.; Smith, H.O.; Venter, J.C.; Dougherty, B.A.; Morrison,  
A:Title: Complete Genome Sequence of a virulent isolate of Streptococcus pneumoniae.  
A:Reference number: A95000, MUID:21357209, PMID:11463916  
A:Accession: C950090  
A:Status: preliminary  
A:Molecule type: DNA  
A:Residues: 1-172 <KOR>  
A:Cross-references: GB:AB005672; PIDN:AAK74916.1; FID:914972254; GSPDB:GN00164; TIGR:SP4  
A:Experimental source: strain TIGR4  
C:Genetics:  
A:Gene: SP0778  
C:Superfamily: 16S rRNA processing protein PA3744

Query Match	38.6%	Score 44;	DB-2;	Length 172;	.
Best Local Similarity	50.0%;	Pred. No. 12;			
Matches	7;	Conservative	5;	Mismatches	2;
				Indels	0;
				Gaps	0

```
Qy      7 EQKSHEVIKFMdVY 20
          :||: :||| | :|
Db      58 KQKNFDIIFKdMY 71
```

## RESULT 15

F97957  
 16S rRNA processing protein RimM [imported] - Streptococcus pneumoniae (strain R6)  
 C:Species: Streptococcus pneumoniae  
 C:Date: 22-Oct-2001 #sequence\_revision 22-Oct-2001 #text\_change 01-Mar-2002  
 C:Accession: F97957  
 R:Hosts: J.A. Alborn Jr., W. Arnold, J. Blaszczyk, L. Buregt, S. Dehoff, B.S. E  
 e, R. Lebanc, D.J. Lee, L.N. Lefkowitz, E.J. Lu, J. Matsushima, E. McAhren, S.; M  
 Y. P., Sun, P.M., Winkler, M.E.  
 J. Bacteriol. 183, 5709-5712, 2001  
 A:Authors: Yang, Y., Young-Bellido, M., Zhao, G., Zook, C., Balez, R.H., Jaskunas, S.R.  
 A:Title: Genome of the Bacterium Streptococcus pneumoniae Strain R6.  
 A:Reference number: A97872; MUID:21429245; PMID:11544234  
 A:Accession: F97957  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-172 <KUR>  
 A:Cross-references: GB:AE007317; PIDN:AAK99490.1; PID:g15458275; GSPDB:GN00174  
 C:Genetics:  
 A:Gene: rimM  
 A:Superfamily: 16S rRNA processing protein PA3744

Query Match	38.6%	Score 44;	DB 2;	Length 172;
Best Local Similarity	50.0%;	Pred. No. 12;		
Matches	7;	Conservative	5;	Mismatches 2;
			Indels	0;
			Gaps	0;

```
Qy      7  EQKSHEVIKEMDVY  20
         :||: :||| :|
Db      58 KQKNFDIIFKDMY  71
```





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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:27:48 ; Search time 4.84615 Seconds  
(without alignments)  
203.782 Million cell updates/sec

Title: US-09-266-543-5

Perfect score: 114

Sequence: 1 APTEGEQKSHVIRKMDVYC 21

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 127863 seqs, 47026705 residues

Total number of hits satisfying chosen parameters: 127863

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : SwissProt\_41.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	105	92.1	214	1	VEGA_MOUSE
2	101	88.6	214	1	VEGA_RAT
3	90	78.9	190	1	VEGA_MESAU
4	85	74.6	190	1	VEGA_HORSE
5	85	74.6	190	1	VEGA_PIG
6	81	71.1	190	1	VEGA_BOVIN
7	79	69.3	146	1	VEGA_SHEEP
8	76	66.7	214	1	VEGA_CANFA
9	74	64.9	164	1	VEGA_CAVPO
10	65.5	57.5	232	1	VEGA_HUMAN
11	58	50.9	216	1	VEGA_CHICK
12	46	40.4	2186	1	YLS2_CAMEL
13	44	38.6	172	1	RIMM_STRPN
14	44	38.6	886	1	HS97_STRFN
15	44	38.6	1131	1	RFC1_MOUSE
16	43	37.7	285	1	PANC_LISMO
17	43	37.7	574	1	YNAJ_BACSU
18	43	37.7	574	1	YUHI_YEAST
19	42.5	37.3	896	1	TPS2_YEAST
20	42.5	37.3	1265	1	RPOD_CYAPA
21	42	36.8	83	1	RS27_XENLA
22	42	36.8	137	1	NXU1_CAMEL
23	42	36.8	151	1	M329_ARATH
24	42	36.8	172	1	RIMM_STRP8
25	42	36.8	172	1	RIMM_STRPY
26	42	36.8	273	1	FPG_STRMU
27	42	36.8	365	1	FTZ3_PYRHO
28	42	36.8	888	1	YUHO_YEAST
29	42	36.8	2542	1	TIN2_HUMAN
30	41	36.0	83	1	RS27_HUMAN
31	41	36.0	302	1	CYSD_VIBCH
32	41	36.0	398	1	HKU1_ARATH
33	41	36.0	472	1	PHR_ECOLI

34	41	36.0	499	1	YDKA_SCHPO	P87117 schizosacch
35	41	36.0	689	1	KPIB_RAT	O88658 rattus norv
36	41	36.0	868	1	TOP1_PSBAB	O9h2j5 pseudomonas
37	40.5	35.5	298	1	YN05_YEAST	P53843 saccharomyc
38	40	35.1	83	1	RS27_SCHPO	O74330 schizosacch
39	40	35.1	322	1	LIPA_RHIME	O92q94 rhizobium m
40	40	35.1	335	1	Y780_METUA	O58190 methanococc
41	40	35.1	394	1	EFTU_MYCGA	P18906 mycoplasma
42	40	35.1	411	1	RAPS_CHICK	O42393 gallus gall
43	40	35.1	432	1	ENO_ENTHR	O6gr70 enterococcu
44	40	35.1	440	1	GSA_CHLPP	O9j1w9 chlamydia p
45	40	35.1	524	1	SAP_HUMAN	P07602 h proactiva

## ALIGNMENTS

RESULT 1	VEGA_MOUSE	STANDARD;	PRT;	214 AA.
AC	000731;			
DT	01-APR-1993 (Rel. 25, Created)			
DT	01-OCT-1996 (Rel. 34, Last sequence update)			
DT	15-SEP-2003 (Rel. 42, Last annotation update)			
DE	Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).			
GN	VEGF OR VEGFA.			
OS	Mus musculus (Mouse).			
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.			
OX	NCBI_TaxId=10090;			
RN	[1]			
RP	SEQUENCE FROM N.A. (ISOROMS VEGF-1; VEGF-2 AND VEGF-3).			
RA	MEDLINE=92274860; PubMed=1592003;			
RA	Breier G., Albrecht U., Steiner S., Risau W.;			
RT	"Expression of vascular endothelial growth factor during embryonic angiogenesis and endothelial cell differentiation.";			
RT	Development 114:521-532(1992).			
RN	[2]			
RP	SEQUENCE FROM N.A. (ISOROM VEGF-1).			
RX	MEDLINE=92355593; PubMed=1644816;			
RA	Clafey K.P., Wilkison W.O., Spiegelman B.M.;			
RT	"Vascular endothelial growth factor. Regulation by cell differentiation and activated second messenger pathways.";			
RT	J. Biol. Chem. 267:16317-16322(1992).			
RN	[3]			
RP	SEQUENCE OF 1-3 FROM N.A.			
RX	MEDLINE=96216498; PubMed=8632007;			
RA	Shima D.T., Kuroki M., Deutsch U., Ng Y., Adams A.P., D'Amore P.A.;			
RT	"The mouse gene for vascular endothelial growth factor. Genomic structure, definition of the transcriptional unit, and characterization of transcriptional and post-transcriptional regulatory sequences.";			
RT	J. Biol. Chem. 271:3877-3883(1996).			
CC	-1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (by similarity).			
CC	-1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (by similarity).			
CC	-1- SUBCELLULAR LOCATION: VEGF-1 and VEGF-2 are secreted while VEGF-3 remains cell-surface associated unless released by heparin.			
CC	-1- ALTERNATIVE PRODUCTS:			
CC	Name=VEGF-3; Synonyms=VEGF188;			
CC	Isoid=000731-1; Sequence=Displayed;			
CC	Name=VEGF-1; Synonyms=VEGF164;			
CC	Isoid=000731-2; Sequence=VSP_004626, VSP_004627;			
CC	Name=VEGF-2; Synonyms=VEGF120;			
CC	Isoid=000731-3; Sequence=VSP_004628;			
CC	-1- TISSUE SPECIFICITY: In developing embryos, expressed mainly in the			

CC choroid plexus, paraventricular neuroepithelium, placenta and  
 CC kidney glomeruli. Also found in bronchial epithelium, adrenal  
 CC gland and in seminiferous tubules of testis. High expression of  
 CC VEGF continues in kidney glomeruli and choroid plexus in adults.  
 CC -1- DOMAIN: VEGF-3 contains a basic insert which acts as a cell  
 CC recognition signal.  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 CC DR EMBL, S37052; AAB2252.1; -  
 CC DR EMBL, S38083; AAB2253.1; -  
 CC DR EMBL, S38100; AAB2254.1; -  
 CC DR EMBL, M95200; AAA40547.1; -  
 CC DR EMBL, U41383; -, NOT\_ANNOTATED\_CDS.  
 CC DR PIR, A44881; A44881.  
 CC DR PIR, B44881; B44881.  
 CC DR HSSP, P15692; 2VPF.  
 CC DR MGD, MGI:103178; Vegfa.  
 CC DR InterPro: IPR000072; PD\_growth\_factor.  
 CC DR Pfam: PF001629; PD\_growth\_factor; 1.  
 CC DR ProDom: PD001629; PD\_growth\_factor; 1.  
 CC DR SMART, SM00141; PDGF; 1.  
 CC DR PROSITE, PS00249; PDGF; 1.  
 CC DR PROSITE, PS50278; PDGF; 2; 1.  
 CC DR Mitogen: Angiogenesis; Growth factor; Glycoprotein; Signal;  
 CC Heparin-binding; Alternative splicing; Multigene family.  
 CC KW Heparin-binding; Alternative splicing; Multigene family.  
 CC FT SIGNAL 1 26  
 CC FT CHAIN 27 214  
 CC FT DISULFID 51 93  
 CC FT DISULFID 82 127  
 CC FT DISULFID 86 129  
 CC FT DISULFID 76 76  
 CC FT DISULFID 85 85  
 CC FT CARBOHYD 100 100.  
 CC FT VARSPLC 140 140  
 CC FT VARSPLC 141 164  
 CC FT VARSPLC 141 208  
 CC FT CONFLICT 117 118  
 CC FT SEQUENCE 214 AA, 25283 MW, B5540B51EAB6B17 CRC64;  
 SQ  
 Query Match 92.1%; Score 105; DB 1; Length 214;  
 Best Local Similarity 100.0%; Freq. NO. 4.2e-10;  
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 Oy 1 APTGEGQKSHVIEKMDVY 20  
 Db 27 APTGEGQKSHVIEKMDVY 46  
 RESULT 2  
 VEGA RAT STANDARD; PRT; 214 AA.  
 ID VEGA RAT  
 AC P16612; O9QXG7; O9QXG6; O9QXG7;  
 DT 01-AUG-1990 (Rel. 15, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 DE permeability factor) (VFP).  
 GN VEGF OR VEGFA.  
 OS Rattus norvegicus (Rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.  
 OC NCBI\_TaxID=10116;

RN [1]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF-A164), AND SEQUENCE OF 27-190.  
 RX MEDLINE=90207249; PubMed=2320579;  
 RA Conn G., Bayne M.L., Soderman D.D., Kwok P.W., Sullivan K.A.,  
 RA Paillet T.M., Hope D.A., Thomas K.A.;  
 RT "Amino acid and cDNA sequences of a vascular endothelial cell mitogen  
 RT that is homologous to platelet-derived growth factor.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 87:2628-2633(1990).  
 RN [2]  
 RP SEQUENCE FROM N.A. (ISOFORMS VEGF-A188; VEGF-A164; VEGF-A144 AND  
 RP VEGF-A120).  
 RA Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;  
 RT "Developmental expression of vascular endothelial growth factor-A  
 RT (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat  
 RT muscle.";  
 RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.  
 RL [3]  
 RN SEQUENCE OF 27-40.  
 RP TISSUE=Glial tumor;  
 RX MEDLINE=95221439; PubMed=7706320;  
 RA Disalvo J., Bayne M.L., Conn G., Kwok P.W., Trivedi P.G.,  
 RA Soderman D.D., Paillet T.M., Sullivan K.A., Thomas K.A.;  
 RT "Purification and characterization of a naturally occurring vascular  
 RT endothelial growth factor: placenta growth factor heterodimer.";  
 RL J. Biol. Chem. 270:7717-7723(1995).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: VEGF-A120 is acidic and freely secreted.  
 CC VEGF-A164 is more basic, has heparin-binding properties and,  
 CC although a significant proportion remains cell-associated, most is  
 CC freely secreted. VEGF-A188 is very basic; it is cell-associated  
 CC extracellular matrix, although it may be released as a soluble  
 CC form by heparin, heparinase or plasmin (By similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=4;  
 CC Comment=Additional isoforms seem to exist;  
 CC Name=VEGF-A188;  
 CC IsoId=P16612-1; Sequence=Displayed;  
 CC Name=VEGF-A164;  
 CC IsoId=P16612-2; Sequence=VSP\_004629, VSP\_004630;  
 CC Name=VEGF-A144;  
 CC IsoId=P16612-3; Sequence=VSP\_004632;  
 CC Name=VEGF-A120;  
 CC IsoId=P16612-4; Sequence=VSP\_004631;  
 CC -1- TISSUE SPECIFICITY: Expressed in the pituitary, in brain, in  
 CC particularly in supraoptic and paraventricular nuclei and the  
 CC choroid plexus. Also found abundantly in the corpus luteum of the  
 CC ovary and in kidney glomeruli.  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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 CC -----  
 CC DR EMBL, M32167; AAA41211.1; -  
 CC DR EMBL, AF215725; AAF19211.1; -  
 CC DR EMBL, AF215726; AAF19212.1; -  
 CC DR EMBL, AF222779; AAF25958.1; -  
 CC DR HSSP, P15692; 1VPF.  
 CC DR InterPro: IPR000072; PD\_growth\_factor.  
 CC Pfam: PF00341; PDGF; 1.  
 CC ProDom: PD001629; PD\_growth\_factor; 1.

```

DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS00278; PDGF_2; 1.
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Alternative splicing; Multigene family.
FT SIGNAL 1 26
FT CHAIN 27 214
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CARBOHYD 100 100
FT VARSPLIC 140 140
FT VARSPLIC 141 164
FT VARSPLIC 141 208
FT VARSPLIC 165 208
FT CONFLICT 101 101
SQ SEQUENCE 214 AA; 25239 MW; 60FB876F5304946 CRC64;

Query Match
Best Local Similarity 90.0%; Pred. No. 1.9e-09;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

1 APTTEGQKSHVYKEMDVY 20
27 APTTEGQKSHVYKEMDVY 46

RESULT 3
VEGA_MESAU STANDARD; PRT; 190 AA.
ID VEGA_MESAU STANDARD; PRT; 190 AA.
AC 099FS1;
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Mesocricetus.
OX NCBI_TaxID=10036;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=99311285; PubMed=1082276;
RA Yi X.J., Jiang H.Y., Lee K.K., Tang P.L., Chow P.H.;
RT "Expression of vascular endothelial growth factor (VEGF) and its
RT receptors during embryonic implantation in the golden hamster
RT (Mesocricetus auratus).";
RL Cell Tissue Res. 296:339-349(1999).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (By
CC similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
DR EMBL; AF063013; AK00049.1; -.
DR HSSP; P15692; 1VGH.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS00278; PDGF_2; 1.
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Multigene family.
FT SIGNAL 1 26
FT CHAIN 27 190
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CARBOHYD 100 100
SQ SEQUENCE 190 AA; 22276 MW; F00C5A8EA79A465F CRC64;

Query Match
Best Local Similarity 80.0%; Pred. No. 1.2e-07;
Matches 16; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

1 APTTEGQKSHVYKEMDVY 20
27 APTTEGQKSHVYKEMDVY 46

RESULT 4
VEGA_HORSE STANDARD; PRT; 190 AA.
ID VEGA_HORSE STANDARD; PRT; 190 AA.
AC 09GKR0;
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Equus caballus (Horse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
OX NCBI_TaxID=9796;
RN [1]
RP SEQUENCE FROM N.A.
RX Miura N., Miura K., Kawahara K., Nakashima M., Fukumitsu S.,
RA Kawabata H., Uto N., Oka T., Maruyama I., Sakamoto H.;
RT "Cloning of cDNA and high-level expression of equine vascular
RT endothelial growth factor (VEGF).";
RL Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial
CC cell growth. Induces endothelial proliferation and vascular
CC permeability (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (By
CC similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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DR EMBL: AB053350; BAB20890.1; -
DR HSSP: P15692; 1VGH.
DR InterPro: IPR000072; PD_growth_factor.
DR Pfam: PF00341; PDGF_1.
DR ProDom: PD001629; PD_growth_factor; 1.
DR SMART: SM00141; PDGF_1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS50278; PDGF_2; 1.
DR Mitogen: Angiogenesis; Growth factor; Glycoprotein; Signal;
KM Multigene family.
FT SIGNAL 1 26
FT CHAIN 1 26
FT DISULFID 27 190
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CAROXYD 100 100
SQ SEQUENCE 190 AA; 22312 MW; 879E161439E5F87 CRC64;

Query Match
Best Local Similarity 74.6%; Score 85; DB 1; Length 190;
Matches 15; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

OY 1 APTTEGKSHVKEKMDVY 20
DB 27 APMAEGKHVKEKMDVY 46

RESULT 5
VEGA_PIG STANDARD; PRT; 190 AA.
AC P49151; O9GL52;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX NCBI_Taxid=9823;
RN [1]
RP TISSUE=Heart;
RC MEDLINE=95143284; PubMed=7841203;
RA Sharma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;
RT "Nucleotide sequence and expression of the porcine vascular
RT endothelial growth factor."
RL Biochim. Biophys. Acta 1260:235-238 (1995).
RN [2]
RP SEQUENCE FROM N.A.
RA Lee T., Canty J.M.;
RT "PCR cloning of porcine cardiac vascular endothelial growth factor
RT gene."
RL Submitted (NOV-2000) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (by similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (by similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (by
CC similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
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CC -----
DR EMBL: X81380; CAA57143.1; -
DR EMBL: AF318502; AAC33064.1; -
DR PIR: S52130; S52130.
DR HSSP: P15692; 1VGH.
DR InterPro: IPR000072; PD_growth_factor.
DR Pfam: PF00341; PDGF_1.
DR ProDom: PD001629; PD_growth_factor; 1.
DR SMART: SM00141; PDGF_1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS50278; PDGF_2; 1.
DR Mitogen: Angiogenesis; Growth factor; Glycoprotein; Signal;
KM Heparin-binding; Multigene family.
FT SIGNAL 1 26
FT CHAIN 1 26
FT DISULFID 27 190
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CAROXYD 100 100
FT CONFLICT 102 102
SQ SEQUENCE 190 AA; 22368 MW; 04D408BD7913047F CRC64;

Query Match
Best Local Similarity 74.6%; Score 85; DB 1; Length 190;
Matches 15; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

OY 1 APTTEGKSHVKEKMDVY 20
DB 27 APMAEGDKPHVKEKMDVY 46

RESULT 6
VEGA_BOVIN STANDARD; PRT; 190 AA.
AC P15691;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea;
OC Bovidae; Bovinae; Bos.
OX NCBI_Taxid=9913;
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-47.
RA MEDLINE=90069608; PubMed=2479986;
RX Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;
RT "Vascular endothelial growth factor is a secreted angiogenic
RT mitogen."
RL Science 246:1306-1309 (1989).
RN [2]
RP SEQUENCE OF 27-190 FROM N.A. (ISOFORMS ALPHA AND BETA).
RX MEDLINE=90121225; PubMed=2610687;
RA Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J.,
RA Lau K., Cripp T., Fiddes J.C., Abraham J.A.;
RT "Vascular endothelial growth factor: a new member of the platelet-
RT derived growth factor gene family."
RL Biochem. Biophys. Res. Commun. 165:1198-1206 (1989).
RN [3]
RP SEQUENCE OF 27-31.
RX MEDLINE=89286596; PubMed=2735925;
RA Ferrara N., Henzel W.J.;
RT "Pituitary follicular cells secrete a novel heparin-binding growth
RT factor specific for vascular endothelial cells."

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RL Biochem. Biophys. Res. Commun. 161:851-858 (1989).
CC -1- FUNCTION: Growth factor active in angiogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (By
CC similarity).
CC -1- ALTERNATIVE PRODUCTS:
CC Event-Alternative splicing; Named isoforms=2;
CC Name=Alpha;
CC IsoId=PI5691-1; Sequence=Displayed;
CC Name=Beta;
CC IsoId=PI5691-2; Sequence=VSP_004613; VSP_004614;
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
DR EMBL; M32976; AAA30502.1; -
DR EMBL; M31836; AAA30804.1; -
DR EMBL; M33750; AAA30805.1; -
DR PIR; B40080; B40080.
DR HSSP; P15692; 1VGH.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
DR Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
DR Heparin-binding; Alternative splicing; Multigene family.
KW SIGNAL.
FT CHAIN 1 26
FT DISULFID 27 190
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 129
FT DISULFID 76 129
FT CARBOHYD 100 100
FT VARSPPLIC 139 193
FT FT Missing (in isoform Beta).
FT FT /FTId=VSP_004613.
FT FT R -> K (in isoform Beta).
FT FT /FTId=VSP_004614.
FT FT EDBF903E46E24789 CRC64;
SQ SEQUENCE 190 AA; 22310 MW; 22310 MW; EDBF903E46E24789 CRC64;

Query Match 71.1%; Score 81; DB 1; Length 190;
Best Local Similarity 75.0%; Pred. No. 3.7e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Qy 1 APTTEGQKSHVIEKMDVY 20
Db 27 APMAEGGQKPHVVKEMDVY 46

RESULT 7
VEGA SHEEP STANDARD; PRT; 146 AA.
ID VEGA_SHEEP
AC P50412;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
permeability factor) (VPF).

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GN VEGF OR VEGFA.
OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Euteria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RX TISSUE=Kidney;
RX MEDLINE=97117958; PubMed=8958842;
RA Redmer D.A., Dai Y., Li J., Charnock-Jones D.S., Smith S.K.,
RA Reynolds L.P., Moor R.M.;
RT "Characterization and expression of vascular endothelial growth
RT factor (VEGF) in the ovine corpus luteum.";
RL J. Reprod. Fertil. 108:157-165(1996).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
DR EMBL; X89506; CAA61677.1; -
DR PIR; S57956; S57956.
DR HSSP; P15692; 1VPP.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
DR Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
DR Heparin-binding; Multigene family.
KW SIGNAL.
FT CHAIN 1 26
FT DISULFID 27 146
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 129
FT DISULFID 76 129
FT CARBOHYD 100 100
FT VARSPPLIC 139 193
FT FT Missing (in isoform Beta).
FT FT /FTId=VSP_004613.
FT FT R -> K (in isoform Beta).
FT FT /FTId=VSP_004614.
FT FT EDBF903E46E24789 CRC64;
SQ SEQUENCE 146 AA; 17247 MW; 48792CB557F91760 CRC64;

Query Match 69.3%; Score 79; DB 1; Length 146;
Best Local Similarity 75.0%; Pred. No. 5.9e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Qy 1 APTTEGQKSHVIEKMDVY 20
Db 27 APMAEGGQKPHVVKEMDVY 46

RESULT 8
VEGA CANFA STANDARD; PRT; 214 AA.
ID VEGA_CANFA
AC O9MYV3; O9XSP3; O9XSP4; O9XSP5;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
permeability factor) (VPF).
GN VEGF OR VEGFA.

```

OS Canis familiaris (Dog).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.  
 OX NCBI\_TaxId=9615;  
 [1]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF-188).  
 RX MEDLINE=20125516; PubMed=1061874;  
 RA Schidgger P., Weighofer W., Suarez S., Kaser-Hotz B., Steiner R.,  
 RA Ballmer-Hofer K., Jausssi R.;  
 RT "Vascular endothelial growth factor (VEGF) and its receptors in tumor-  
 RT bearing dogs.";  
 RL Biol. Chem. 380:1449-1454 (1999).  
 [2]  
 RP SEQUENCE FROM N.A. (ISOFORMS VEGF-188; VEGF-182 AND VEGF-164).  
 RC TISSUE=Heart;  
 RA Jüngling L., Roque R.S.;  
 RU Submitted (MAR-1999) to the EMBL/Genbank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin (by similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (by similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or  
 CC to the extracellular matrix unless released by heparin (by  
 CC similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=3;  
 CC Comment=Additional isoforms seem to exist;  
 CC Name=VEGF-188;  
 CC IsoId=GQMYV3-1; Sequence=Displayed;  
 CC Name=VEGF-182;  
 CC IsoId=GQMYV3-2; Sequence=VSP\_004617;  
 CC Name=VEGF-164;  
 CC IsoId=GQMYV3-3; Sequence=VSP\_004615, VSP\_004616;  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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 CC -----  
 CC EMBL, AJ133758; CAB82426.1; -;  
 CC EMBL, AF133250; AAD29684.1; -;  
 CC EMBL, AF133249; AAD29683.1; -;  
 CC EMBL, AF133248; AAD29682.1; -;  
 CC HSSP; P15692; LVGH.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF; 1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS00278; PDGF\_2; 1.  
 DR Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KM Heparin-binding; Alternative splicing; Multigene family.  
 FT SIGNAL 1 26  
 FT CHAIN 27 214  
 FT DISULFID 51 93  
 FT DISULFID 82 127  
 FT DISULFID 86 129  
 FT DISULFID 76 76  
 FT DISULFID 85 85  
 FT CARBOHYD 100 100  
 FT VARSPLIC 140 140  
 FT VARSPLIC 141 164  
 FT VARSPLIC 159 164  
 FT Missing (in isoform VEGF-182).

FT FT /FTId=VSP\_004617.  
 FT CONFLICT 143 143 I -> V (IN REF. 2).  
 FT CONFLICT 161 161 P -> S (IN REF. 2).  
 SQ SEQUENCE 214 AA; 25175 MW; 0AC980A158C44B27 CRC64;  
 Query Match 66.7%; Score 76; DB 1; Length 214;  
 Best Local Similarity 70.0%; Pred. No. 2.86-05;  
 Matches 14; Conservative 1; Mismatches 5; Indels 0; Gaps 0;  
 Qy 1 APTEGEGKSHVIFKFMVDV 20  
 Db 27 APMAGGKHKPHVVKFMVDV 46  
 RESULT 9  
 VEGA\_CAVPO STANDARD; PRT; 164 AA.  
 ID VEGA\_CAVPO STANDARD; PRT; 164 AA.  
 AC P26617;  
 DT 01-AUG-1992 (Rel. 23, Created)  
 DT 01-AUG-1992 (Rel. 23, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A (VEGF-A) (Vascular permeability  
 DE factor) (VFP).  
 GN VEGF OR VEGFA.  
 OS Cavia porcellus (Guinea pig).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.  
 OX NCBI\_TaxId=10141;  
 [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Bile duct;  
 RA Berse B.;  
 RU Submitted (JAN-1992) to the EMBL/Genbank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial  
 CC cell growth. Induces endothelial proliferation and vascular  
 CC permeability (by similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (by similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or  
 CC to the extracellular matrix unless released by heparin (by  
 CC similarity).  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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 CC -----  
 CC EMBL; M84230; AAA37057.1; -;  
 CC HSSP; P15692; LVGH.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF; 1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS00278; PDGF\_2; 1.  
 DR Mitogen; Angiogenesis; Growth factor; Glycoprotein.  
 KM Heparin-binding; Alternative splicing; Multigene family.  
 FT SIGNAL 25 67  
 FT CHAIN 56 101  
 FT DISULFID 60 103  
 FT DISULFID 50 50  
 FT DISULFID 59 59  
 FT CARBOHYD 74 74  
 FT VARSPLIC 144 AA; 19330 MW; 9EB86A81A9D5DC44 CRC64;  
 SQ SEQUENCE 164 AA; 19330 MW; 9EB86A81A9D5DC44 CRC64;  
 Query Match 64.9%; Score 74; DB 1; Length 164;  
 Best Local Similarity 70.0%; Pred. No. 4.66-05;  
 Matches 14; Conservative 1; Mismatches 5; Indels 0; Gaps 0;  
 Qy 1 APTEGEGKSHVIFKFMVDV 20

Db 1 APWABGEQKREVEKEMDY 20

RESULT 10  
VEGA HUMAN STANDARD; PRT; 232 AA.  
ID VEGA HUMAN STANDARD; PRT; 232 AA.  
AC P15692; 060720; 075875; 016889; 096NWS; 09H1W9; 09H58;  
AC 09U23;  
DT 01-APR-1990 (Rel. 14, Created)  
DT 28-FEB-2003 (Rel. 41, Last sequence update)  
DT 15-SEP-2003 (Rel. 42, Last annotation update)  
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Homo sapiens (human).  
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF189 AND VEGF165).  
RX MEDLINE=90069608; PubMed=2479986;  
RA Leung D.W., Cachianes G., Kiang W.-J., Goeddel D.V., Ferrara N.;  
RT "Vascular endothelial growth factor is a secreted angiogenic mitogen."  
RL Science 246:1306-1309(1989).  
RN [2]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF189), AND PARTIAL SEQUENCE.  
RX MEDLINE=90069609; PubMed=2479987;  
RA Keck P.J., Hauser S.D., Krivi G., Sanzo K., Warren T., Feder J., Connolly D.T.;  
RT "Vascular permeability factor, an endothelial cell mitogen related to PDGF."  
RL Science 246:1309-1312(1989).  
RN [3]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF189).  
RX MEDLINE=91268072; PubMed=1711045;  
RA Fischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D., Fiddes J.C., Abraham J.A.;  
RT "The human gene for vascular endothelial growth factor. Multiple protein forms are encoded through alternative exon splicing."  
RL J. Biol. Chem. 266:11947-11954(1991).  
RN [4]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF206).  
RX MEDLINE=92168017; PubMed=1791831;  
RA Houck K.A., Ferrara N., Winer J., Cachianes G., Li B., Leung D.W.;  
RT "The vascular endothelial growth factor family: identification of a fourth molecular species and characterization of alternative splicing of RNA."  
RL Mol. Endocrinol. 5:1806-1814(1991).  
RN [5]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
RX MEDLINE=92231879; PubMed=1567395;  
RA Weindel K., Marne D., Welch H.A.;  
RT "AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial growth factor."  
RL Biochem. Biophys. Res. Commun. 183:1167-1174(1992).  
RN [6]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF145).  
RX MEDLINE=97207275; PubMed=9054410;  
RA Poltorak Z., Cohen T., Sylvan R., Kandelis Y., Spira G., Vlodavsky I., Keshet E., Neufeld G.;  
RT "VEGF145, a secreted vascular endothelial growth factor isoform that binds to extracellular matrix."  
RL J. Biol. Chem. 272:7151-7158(1997).  
RN [7]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF183).  
RC TISSUE=Kidney;  
RX MEDLINE=99096474; PubMed=9878851;  
RA Lei J., Jiang A., Pei D.;  
RT "Identification and characterization of a new splicing variant of RT vascular endothelial growth factor: VEGF183."  
RL Biochim. Biophys. Acta 1443:400-406(1998).

RN [8]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
RC TISSUE=Breast;  
RX MEDLINE=98119755; PubMed=9450968;  
RA Claffey K.P., Shih S.-C., Mullen A., Dziennis S., Cusick J.L., Abrams K.R., Lee S.W., Detmar M.;  
RT "Identification of a human VPF/VEGF 3' untranslated region mediating hypoxia-induced mRNA stability."  
RL Mol. Biol. Cell 9:469-481(1998).  
RN [9]  
RP SEQUENCE OF 114-209 FROM N.A. (ISOFORM VEGF183).  
RC TISSUE=Retina;  
RX MEDLINE=99165303; PubMed=10067980;  
RA Jingjing L., Xue Y., Agarwal N., Roque R.S.;  
RT "Human Muller cells express VEGF183, a novel spliced variant of vascular endothelial growth factor."  
RL Invest. Ophthalmol. Vis. Sci. 40:752-759(1999).  
RN [10]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
RC TISSUE=Hemangioidendothelioma;  
RX Murata H., Fukushima J., Hattori S., Okuda K., Yanagi H.;  
RT "Human cDNA for the vascular endothelial growth factor isoform VEGF165."  
RL Submitted (DEC-1998) to the EMBL/Genbank/DBJ databases.  
RN [11]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF148).  
RC TISSUE=Renal glomerulus;  
RX MEDLINE=99394945; PubMed=10464055;  
RA Whittle C.J., Gillespie K.M., Harrison R., Mathieson P.W., Harper S.J.;  
RT "Heterogeneous vascular endothelial growth factor (VEGF) isoform mRNA and receptor mRNA expression in human glomeruli, and the identification of VEGF148 mRNA, a novel truncated splice variant."  
RL Clin. Sci. 97:303-312(1999).  
RN [12]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF121).  
RX Sato J.D., Whitney R.G.;  
RT "Human cDNA for vascular endothelial growth factor isoform VEGF121."  
RL Submitted (DEC-1999) to the EMBL/Genbank/DBJ databases.  
RN [13]  
RP SEQUENCE FROM N.A.  
RX Williams S.;  
RT Submitted (DEC-2000) to the EMBL/Genbank/DBJ databases.  
RN [14]  
RP SEQUENCE OF 23-232 FROM N.A. (VEGF165).  
RX Rieder M.U., Armel T.Z., Carrington D.P., Chung M.-W., Lee K.L., Poel C.L., Toch E.J., Yi Q., Nickerson D.A.;  
RT Submitted (OCT-2001) to the EMBL/Genbank/DBJ databases.  
RN [15]  
RP PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.  
RX MEDLINE=90062112; PubMed=2584205;  
RA Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monsell R., Siegel N., Haymore B.L., Leimgruber R., Feder J.;  
RT "Human vascular permeability factor. Isolation from U937 cells."  
RL J. Biol. Chem. 264:20017-20024(1989).  
RN [16]  
RP SEQUENCE OF 27-41.  
RX MEDLINE=93145946; PubMed=7678805;  
RA Fiebig B.L., Jaeger B., Schoellmann C., Weindel K., Wiltng J., Koehe G., Marne D., Hug H., Welch H.A.;  
RT "Synthesis and assembly of functionally active human vascular endothelial growth factor homodimers in insect cells."  
RL Eur. J. Biochem. 211:19-26(1993).  
RN [17]  
RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.  
RX MEDLINE=97352774; PubMed=9207067;  
RA Muller Y.A., Li B., Christinger H.W., Wells J.A., Cunningham B.C., de Vos A.M.;  
RT "Vascular endothelial growth factor: crystal structure and functional mapping of the kinase domain receptor binding site."  
RL Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).  
RN [18]  
RP X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.

```

RA MEDLINE=98035455; PubMed=9351807;
RX Muller V.A., Christinger H.W., Keyt B.A., de Vos A.M.;
RT "the crystal structure of vascular endothelial growth factor (VEGF)
RT refined to 1.93-A resolution: multiple copy flexibility and receptor
RT binding.";
RL Structure 5:1325-1338(1997).
RN [19]
RP X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.
RX MEDLINE=99119204; PubMed=9622142;
RA Wiemann C., Christinger H.W., Cochran A.G., Cunningham B.C.,
RA Fairbrother W.J., Keenan C.J., Meng G., de Vos A.M.;
RT "Crystal structure of the complex between VEGF and a receptor-blocking
RT peptide.";
RL Biochemistry 37:17765-17772(1998).
RN [20]
RP STRUCTURE BY NMR OF 34-135.
RX MEDLINE=97477915; PubMed=9336848;
RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,
RA Starovasnik M.A.;
RT "1H, 13C, and 15N backbone assignment and secondary structure of the
RT receptor-binding domain of vascular endothelial growth factor.";
RL Protein Sci. 6:2250-2260(1997).
RN [21]
RP STRUCTURE BY NMR OF 137-215.
RX MEDLINE=98298440; PubMed=9634701;
RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,
RA Starovasnik M.A.;
RT "Solution structure of the heparin-binding domain of vascular
RT endothelial growth factor.";
RL Structure 6:637-648(1998).
RN [22]
RP FUNCTION.
RX MEDLINE=21320570; PubMed=11427521;
RA Murphy J.F., Fitzgerald D.J.;
RT "Vascular endothelial growth factor induces cyclooxygenase-dependent
RT proliferation of endothelial cells via the VEGF-2 receptor.";
RL FASEB J. 15:1667-1669(2001).
CC CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin. Neupoptin-1 binds isoforms VEGF-165 and VEGF-145.
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PLGF (By similarity).
CC -1- SUBCELLULAR LOCATION: VEGFR121 is acidic and freely secreted.
CC VEGFR165 is more basic, has heparin-binding properties and,
CC although a significant proportion remains cell-associated, most is
CC freely secreted. VEGFR189 is very basic; it is cell-associated
CC after secretion and is bound avidly by heparin and the
CC extracellular matrix, although it may be released as a soluble
CC form by heparin, heparinase or plasmin.
CC -1- ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=7;
CC Comment=Experimental confirmation may be lacking for some
CC isoforms;
CC Name=VEGF206;
CC IsoId=P15692-1; Sequence=Displayed;
CC Name=VEGF189;
CC IsoId=P15692-2; Sequence=VSP_004622;
CC CC

Query Match 57.5%; Score 65.5; DB 1; Length 232;
Best Local Similarity 66.7%; Pred. No. 0.0017;
Matches 14; Conservative 1; Mismatches 5; Indels 1; Gaps 1

Oy 1 APTTE-GEOKSHEVIKEMDVY 20
Db 27 APMAEGGGQNHHEVVKFMDVY 47

RESULT 11
VEGA_CHICK STANDARD; PRT; 216 AA.
ID VEGA_CHICK

```

AC P52582;091420;  
AD 01-OCT-1996 (Rel. 34, Created)  
AE 15-JUL-1998 (Rel. 36, Last sequence update)  
AF 15-SEP-2003 (Rel. 42, Last annotation update)  
AG Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
AH VEGF OR VEGFA.  
AI  
AJ NCBI\_TaxID=9031, 93934;  
AK [1]  
AL  
AM SEQUENCE FROM N.A.  
AN SPECIES=Chicken; TISSUE=Heart;  
AO Takahashi T.;  
AP "Chick embryonic ventricular myocytes VEGF";  
AQ Submitted (FEB-1998) to the EMBL/GenBank/DBJ databases.  
AR [2]  
AS SEQUENCE FROM N.A. (ISOFORMS VEGF-190; VEGF-166 AND VEGF-146).  
AT SPECIES=C.japonica; TISSUE=Embryo;  
AU MEDLINE=96005007; PubMed=7556923;  
AV Flamme I., von Reutern M., Drexler H.C., Syed-Ali S., Risau W.;  
AW "Overexpression of vascular endothelial growth factor in the avian embryo induces hypervascularization and increased vascular permeability without alterations of embryonic pattern formation.";  
AX Dev. Biol. 171:399-414(1995).  
AY [3]  
AZ SEQUENCE OF 60-187 FROM N.A. (ISOFORMS VEGF-190 AND VEGF-166).  
BA SPECIES=C.japonica;  
BB MEDLINE=95301109; PubMed=7781909;  
BC Flamme I., Breier G., Risau W.;  
BD "Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (Flk-1) are expressed during vasculogenesis and vascular differentiation in the quail embryo.";  
BE Dev. Biol. 169:699-712(1995).  
BF -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
BG -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
BH -1- ALTERNATIVE PRODUCTS:  
BI Event=Alternative splicing; Named isoforms=3;  
BJ Comment=Additional isoforms seem to exist;  
BK Name=VEGF-190;  
BL IsoId=P52582-1; Sequence=Displayed;  
BM Name=VEGF-166;  
BN IsoId=P52582-2; Sequence=VSP\_004633, VSP\_004634;  
BO Note=Has been shown to exist only in quail so far;  
BP Name=VEGF-146;  
BQ IsoId=P52582-3; Sequence=VSP\_004635, VSP\_004636;  
BR Note=Has been shown to exist only in quail so far;  
BS -1- TISSUE SPECIFICITY: Abundantly and equally expressed in heart and liver. In kidney glomeruli, brain and yolk sac, VEGF-166 is 5- to 10-times more abundant than VEGF-190.  
BT -1- DEVELOPMENTAL STAGE: VEGF-166 is expressed early at day 1 and is upregulated during gastrulation. Expression of VEGF-190 is detectable only from day 2.  
BU -1- DOMAIN: VEGF-190 contains a basic insert which acts as a cell retention signal.  
BV -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
BW -----  
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CC -----
DR EMBL: AB011078; BAA24925.1; -.
DR EMBL: S79680; AAB35371.1; -.
DR HSSP: P15692; 1VGH.
DR InterPro: IPR000072; PD_growth_factor.
DR Pfam: PF00341; PDGF_1.
DR ProDom: PD001629; PD_growth_factor_1.
DR SMART: SM00141; PDGF_1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS50278; PDGF_2; 1.
KM Mitogen, Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Alternative splicing; Multigene family.
FT SIGNAL 1 26
FT CHAIN 27 216
FT DISULFID 52 94
FT DISULFID 83 128
FT DISULFID 87 130
FT DISULFID 77 77
FT DISULFID 86 86
FT CARBOHYD 101 101
FT VARSPLIC 142 142
FT VARSPLIC 143 166
FT VARSPLIC 166 166
FT VARSPLIC 167 210
SQ SEQUENCE 216 AA; 25203 MW; 82E69C2F6FC6DA7 CRC64;

Query Match
Best Local Similarity 50.9%; Score 58; DB 1; Length 216;
Matches 10; Conservative 5; Mismatches 1; Indels 0; Gaps 0;

Qy 5 BQKSHVYKFMVDY 20
Db 32 DGRKNEVYKFLVY 47

RESULT 12
YLS2_CAEEL STANDARD; PRT; 2186 AA.
AC P34431; P34432;
AT 01-FEB-1994 (Rel. 28, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Hypothetical protein P44E2.2 in chromosome III.
GN F44E2.2/P44E2.1.
OS Caenorhabditis elegans.
OC Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea;
OC Rhabditidae; Pelodierinae; Caenorhabditis.
OX NCBI_TaxID=6239;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=Br1sc1 N2;
RX MEDLINE=94150718; PubMed=7906398;
RA Wilson R., Almscough R., Anderson K., Baynes C., Berke M.,
RA Bonfield J., Burton C., Connell M., Copsey T., Cooper J., Coulson A.,
RA Cratton M., Dear S., Du Z., Dublin R., Favell A., Fraser A.,
RA Fulton L., Gardner A., Green P., Hawkins T., Hillier L., Jier M.,
RA Johnston L., Jones M., Kershaw J., Kirsten J., Laister N.,
RA Latreille P., Lightning J., Lloyd C., Mortimore B., O'Callaghan M.,
RA Parsons J., Percy C., Rifken L., Roopia A., Saunders D., Shownkeen R.,
RA Sims M., Smaildon N., Smith A., Smith M., Sonhammer E., Staden R.,
RA Sultston J., Thierly-Mieg J., Thomas K., Vaughan K.,
RA Waterston R., Watson A., Weinstock L., Wilkinson-Sproat J.,
RA Wohldman P.;
RA "2.2 Mb of contiguous nucleotide sequence from chromosome III of C.
RT elegans.";
RL Nature 368:32-38(1994).
RN [2]
RP REVISIONS, AND ALTERNATIVE SPLICING.
RA Waterston R.;

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RL Submitted (NOV-2001) to the EMBL/GenBank/DBJ databases.
CC -! ALTERNATIVE PRODUCTS:
CC Event-Alternative splicing; Named isoforms=2;
CC Name=b;
CC IsoId=P34431-1; Sequence=Displayed;
CC Name=a;
CC IsoId=P34431-2; Sequence=VSP_005225;
CC Note=No experimental confirmation available;
CC -! SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY A11.
CC -! SIMILARITY: Contains 1 CCHC-type zinc finger.
CC -----
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CC or send an email to license@sib-sib.ch).
CC -----
DR EMBL: L23646; AAA28035.2; -.
DR EMBL: L23646; AAL02516.1; -.
DR HSSP: P03366; 1HWV.
DR WormPep: P44E2.2a; CE07254.
DR WormPep: P44E2.2b; CE29321.
DR InterPro: IPR001969; Aspprotease_site.
DR InterPro: IPR001584; Rve.
DR InterPro: IPR004477; RVTse.
DR InterPro: IPR001878; Znf_CCHC.
DR Pfam: PF00665; rve; 1.
DR Pfam: PF00078; rvc; 1.
DR Pfam: PF00098; zf_CCHC; 1.
DR PRINTS: PR00939; C2HCZNFINGER.
DR SMART: SM00343; ZNF_C2HC; 1.
DR PROSITE: PS00141; ASF_PROTEASE; 1.
DR PROSITE: PS50158; ZF_CCHC; 1.
KW Hypothetical protein; Hydrolase; Aspartyl protease; Transferrase;
KW RNA-directed DNA polymerase; Zinc-finger; Alternative splicing.
FT ZN FING 589 606
FT ACT SITE 664 664
FT VARSPLIC 91 101
FT VARSPLIC 91 101
SQ SEQUENCE 2186 AA; 249691 MW; 29C5A10F81FB3D66 CRC64;

Query Match
Best Local Similarity 40.4%; Score 46; DB 1; Length 2186;
Matches 8; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

Qy 7 BQKSHVYKFMVDY 21
Db 186 EQKXNQNIQINDTRC 200

RESULT 13
RIMM_STRPN STANDARD; PRT; 172 AA.
AC Q97RM5;
AT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Probable 16S rRNA processing protein rimm.
GN RIMM OR SP0778.
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=ATCC BAA-334 / TIGR4;
RX MEDLINE=21357209; PubMed=11463916;
RA Tettelein H., Nelson K.E., Paulsen I.T., Eisen J.A., Read T.D.,
RA Peterson S., Heidelberg J., Deboy R.T., Haft D.H., Dodson R.J.,
RA Durkin A.S., Gwinn M., Kolonay J.F., Nelson W.C., Peterson J.D.,
RA Umayam L.A., White O., Salzberg S.L., Lewis M.R., Radune D.,

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RA Holtzaple E., Khouri H., Wolf A.M., Uterback T.R., Hansen C.L.,  
RA McDonald L.A., Feldlyum T.V., Anguoli S., Dickinson T., Hickey E.K.,  
RA Holt I.E., Lofus B.J., Yang F., Smith H.O., Venter J.C.,  
RA Dougherty B.A., Morrison D.A., Hollingshead S.K., Fraser C.M.;  
RT "Complete genome sequence of a virulent isolate of Streptococcus  
RT pneumoniae";  
RL Science 293:498-506(2001).  
CC -1- FUNCTION: Essential for efficient processing of 16S rRNA. Probably  
CC part of the 30S subunit prior to or during the final step in the  
CC processing of 16S free 30S ribosomal subunits. It could be some  
CC accessory protein needed for efficient assembly of the 30S  
CC subunit. It is needed in a step prior to rRNA during the  
CC maturation of 16S rRNA. It has affinity for free ribosomal 30S  
CC subunits but not for 70S ribosomes (By similarity).  
CC -1- SUBCELLULAR LOCATION: Cytoplasmic (Potential).  
CC -1- SIMILARITY: BELONGS TO THE RIMM FAMILY.  
CC -----  
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CC -----  
DR EMBL: AB007385; AKK74916.1; -.  
DR PIR: C95090; C95090.  
DR TIGR: SP0778; -.  
DR HAMAP: MF\_00014; -; 1.  
DR InterPro: IPR002676; RIMM.  
DR Pfam: PF05239; PRC; 1.  
DR Pfam: PF01782; RIMM; 1.  
KW rRNA processing; Complete proteome  
SQ SEQUENCE 172 AA; 19817 MW; 954FA67942B68468 CRC64;  
  
Query Match 38.6%; Score 44; DB 1; Length 172;  
Best Local Similarity 50.0%; Pred. No. 4.8;  
Matches 7; Conservative 5; Mismatches 2; Indels 0; Gaps 0;  
  
QY 7 EOKSHVTKFMDVY 20  
DB 58 KQKNEIDIKKDMY 71  
  
RESULT 14  
ID HS97\_STRFN STANDARD; PRT; 886. AA.  
AC Q94738;  
DT 01-NOV-1997 (Rel. 35, Created)  
DT 01-NOV-1997 (Rel. 35, Last sequence update)  
DT 30-MAY-2000 (Rel. 39, Last annotation update)  
DE 97 kDa heat shock protein (Heat shock protein 110).  
DS HSP110.  
OS Strongylocentrotus franciscanus (Sea urchin).  
OC Eukaryota; Metazoa; Echinodermata; Eleutherozoa; Echinozoa;  
OC Echinoidea; Euechinoidea; Echinacea; Echinoida; Strongylocentrotidae;  
OC Strongylocentrotus.  
OX NCBI\_TaxID=7665;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=97287853; PubMed=9142981;  
RA Mauk R., Jaworski D., Kamei N., Glabe C.G.;  
RT "Identification of a 97-kDa heat shock protein from S. franciscanus  
RT ovaries with 94% amino acid identity to the S. purpuratus egg surface  
RT receptor for sperm";  
RT Dev. Biol. 184:31-37(1997).  
CC -1- SUBCELLULAR LOCATION: Cytoplasmic (Potential).  
CC -1- SIMILARITY: BELONGS TO THE HEAT SHOCK PROTEIN 70 FAMILY.  
CC -----  
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CC -----  
DR EMBL: U69254; AAB09038.1; -.  
DR InterPro: IPR001023; Hsp70.  
DR Pfam: PF00012; HSP70; 1.  
DR PRINTS: PR00301; HEATSHOCK70.  
DR ProDom: PD000089; HSP70\_3; FALSE.  
DR PROSITE: PS00297; HSP70\_1; FALSE.  
DR PROSITE: PS00329; HSP70\_2; FALSE.  
DR PROSITE: PS01036; HSP70\_3; 1.  
KW ATP-binding.  
SQ SEQUENCE 886 AA; 98446 MW; 252177643ECFEDD8 CRC64;  
  
Query Match 38.6%; Score 44; DB 1; Length 886;  
Best Local Similarity 88.9%; Pred. No. 28;  
Matches 8; Conservative 1; Mismatches 0; Indels 0; Gaps 0;  
  
QY 1 APTTEGEX 9  
DB 846 APTTEGEX 854  
  
RESULT 15  
ID RPL1\_MOUSE STANDARD; PRT; 1131 AA.  
AC P35601;  
DT 01-JUN-1994 (Rel. 29, Created)  
DT 01-OCT-1996 (Rel. 34, Last sequence update)  
DT 16-OCT-2001 (Rel. 40, Last annotation update)  
DE Activator 1 140 kDa subunit (Replication factor C large subunit) (Al  
DE 140 kDa subunit) (Rf-C 140 kDa subunit) (Activator 1 large subunit)  
DE (Al-p145) (Differentiation specific element binding protein)  
DE (ISRE-binding protein).  
DE RFL1 OR RBC1 OR IBE-1.  
GN Mus musculus (Mouse).  
OC Mus musculus (Mouse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
OX NCBI\_TaxID=10090;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX STRAIN=BALB/c;  
RX MEDLINE=94089669; PubMed=8265586;  
RA Burtelo P.D., Utani A., Pan Z., Yamada Y.;  
RT "Cloning of the large subunit of activator 1 (replication factor C)  
RT reveals homology with bacterial DNA ligase";  
RT Proc. Natl. Acad. Sci. U.S.A. 90:11543-11547(1993).  
RN [2]  
RP SEQUENCE FROM N.A.  
RX TISSUE=Liver;  
RX MEDLINE=94158635; PubMed=8114700;  
RA Luckow B., Bunz F., Stillman B., Lichter P., Schnetz G.;  
RT "Cloning, expression, and chromosomal localization of the  
RT 140-kilodalton subunit of replication factor C from mice and  
RT humans";  
RT Mol. Cell. Biol. 14:1626-1634(1994).  
RN [3]  
RP SEQUENCE FROM N.A.  
RX STRAIN=Swiss;  
RX MEDLINE=95386065; PubMed=7659092;  
RA McGhee Habener J.F.;  
RT "Differentiation-specific element binding protein (DSEB) binds to a  
RT defined element in the promoter of the angiotensinogen gene required  
RT for the irreversible induction of gene expression during  
RT differentiation of 3T3-L1 adipoblasts to adipocytes";  
RT Mol. Endocrinol. 9:487-501(1995).  
RN [4]  
RP SEQUENCE FROM N.A.  
RA Haque S.J.;  
RL Submitted (FEB-1994) to the EMBL/GenBank/DBJ databases.  
RN [5]  
SQ SEQUENCE OF 1-565 FROM N.A.





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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:33:38 ; Search time 21.7538 Seconds  
(without alignment)  
249.110 Million cell updates/sec

Title: US-09-266-543-5  
Perfect score: 114  
Sequence: 1 APTTEGEQKSHVIFKMDVYC 21

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 830525 seqs, 258052604 residues  
Total number of hits satisfying chosen parameters: 830525

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :  
1: SPTREMBL.23:\*  
2: sp\_archaea:\*  
3: sp\_bacteria:\*  
4: sp\_fungi:\*  
5: sp\_human:\*  
6: sp\_invertebrate:\*  
7: sp\_mammal:\*  
8: sp\_mhc:\*  
9: sp\_organelle:\*  
10: sp\_plant:\*  
11: sp\_rodent:\*  
12: sp\_virus:\*  
13: sp Vertebrate:\*  
14: sp\_unclassified:\*  
15: sp\_virus:\*  
16: sp\_bacteriaph:\*  
17: sp\_archaeap:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	105	92.1	141	11	070123 mus musculus
2	101	88.6	110	11	088911 rattus norv
3	101	88.6	190	11	091281 ratius norv
4	91	79.8	190	11	090X39 spalax leuc
5	83	72.8	184	6	08HY70 mustela vis
6	79	70.2	189	6	095104 felis silve
7	79	69.3	190	6	077643 ovis aries
8	75	65.8	124	6	088E29 sus scrofa
9	69	60.5	118	6	09MZB1 Oryzomys latipes
10	65.5	57.5	191	4	096KJ0 homo sapien
11	65.5	57.5	191	4	096KJ0 homo sapien
12	65.5	57.5	191	6	095NE5 macaca fasc
13	61	53.5	126	6	09BDP7 macaca mulia
14	50	43.9	194	13	042571 xenopus lae
15	50	43.9	194	13	042572 xenopus lae
16	49	43.0	1029	16	09CMT7 Pasteurella

ID	Score	Query Match	Length	ID	Description
17	48	42.1	144	13	073822 brachydanio
18	48	42.1	188	5	073682 Oryzomys latipes
19	48	42.1	1357	13	081K11 plasmidium
20	47.5	41.7	360	5	045344 caenorhabditis
21	47	41.2	208	10	09LW82 Oryzomys latipes
22	47	41.2	208	10	08H665 Oryzomys latipes
23	46	40.4	288	2	08KME1 leucosticte
24	46	40.4	401	3	08NKE2 Oryzomys latipes
25	46	40.4	436	10	022206 Arabidopsis thaliana
26	46	40.4	499	4	08WV3 homo sapien
27	46	40.4	2272	5	077329 caenorhabditis
28	45	39.5	128	6	08EPL5 equus caballus
29	45	39.5	2213	6	081HW8 plasmidium
30	44.5	39.0	235	11	08C8R5 mus musculus
31	44	38.6	113	16	097M50 Oryzomys latipes
32	44	38.6	172	16	08DO33 Oryzomys latipes
33	44	38.6	180	16	09Z5A5 Streptococcus
34	44	38.6	248	16	08YX8 Oryzomys latipes
35	44	38.6	405	3	014349 schistosoma
36	44	38.6	1455	11	09ROG8 Oryzomys latipes
37	44	38.6	1455	11	09ROG8 Oryzomys latipes
38	43.5	38.2	982	12	08B0T4 Oryzomys latipes
39	43	37.7	113	16	098K44 Oryzomys latipes
40	43	37.7	213	16	08NOC6 Oryzomys latipes
41	43	37.7	278	16	09PL23 Oryzomys latipes
42	43	37.7	332	17	029749 Archaeoglobus
43	43	37.7	360	4	09UG88 Homo sapien
44	43	37.7	439	5	08SOK7 encephalito
45	43	37.7	465	10	08S465 zea mays

## ALIGNMENTS

RESULT 1  
ID 070123 PRELIMINARY; PRT; 141 AA.  
AC 070123;  
DT 01-AUG-1998 (TRMBLrel. 07, Created)  
DT 01-AUG-1998 (TRMBLrel. 07, Last sequence update)  
DT 01-MAR-2003 (TRMBLrel. 23, Last annotation update)  
DE VEGF115.  
GN VEGFA OR VEGF.  
OS Mus musculus (Mouse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.  
OC NCBI\_TaxID=10090;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC STRAIN=ICR;  
RX MEDLINE=95101726; PubMed=7803491;  
RA Sugihara T., Kaul S.C., Mitsui Y., Wadhwa R.;  
RT "Enhanced expression of multiple forms of VEGF is associated with  
RT spontaneous immortalization of murine fibroblasts.";  
RL Biochim. Biophys. Acta 1224:365-370(1994).  
RN [2]  
RP SEQUENCE FROM N.A.  
RC STRAIN=ICR;  
RX MEDLINE=98112857; PubMed=9446618;  
RA Sugihara T., Wadhwa R., Kaul S.C., Mitsui Y.;  
RT "A novel alternatively spliced form of murine vascular endothelial  
RT growth factor, VEGF 115.";  
RL U. Biol. Chem. 273:3033-3038(1998).  
DR EMBL; U50279; AAC05442.1; -.  
DR HSP; P49763; 1FV.  
DR MGD; MGI:103178; Vegfa.  
DR InterPro: IPR000072; PD\_growth\_factor.  
DR Pfam: PF00141; PDGF\_1.  
DR ProDom: PD001529; PD\_growth\_factor; 1.  
DR SMART; SM00141; PDGF\_1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS00278; PDGF\_2; 1.  
SQ SEQUENCE 141 AA; 15550 MW; A27C4E5A7071338 CRC64;

Query Match 92.1%; Score 105; DB 11; Length 141;  
 Best Local Similarity 100.0%; Pred. No. 1.1e-09;  
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGOKSHVIFKMDVY 20  
 |||||  
 DB 27 APTTEGOKSHVIFKMDVY 46

## RESULT 2

088911 PRELIMINARY; PRT; 110 AA.

AC 088911; PRELIMINARY; PRT; 110 AA.  
 DT 01-NOV-1998 (TREMBlrel. 08, Created)  
 DT 01-NOV-1998 (TREMBlrel. 08, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor A 110 (Fragment).  
 GN VEGF.  
 OS Rattus norvegicus (Rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.  
 OX NCBI\_TaxID=10116;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=Sprague-Dawley; TISSUE=Penis;  
 RX MEDLINE=99115228; PubMed=9916007;  
 RA Burchardt, M., Burchardt T., Chen M.W., Shabsigh A., de la Taille A.,  
 RA Buttyan R., Shabsigh R.;  
 RT "Expression of messenger ribonucleic acid splice variants for vascular  
 RT endothelial growth factor in the penis of adult rats and humans.";  
 RL Bio. Reprod. 60:398-404(1999).  
 DR EMBL; AF080594; AAC36708.1; -.  
 DR HSP; P49763; 1FZV.  
 DR InterPro; IPR002400; GF\_cysknoc.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR PRINTS; PR00438; GFCYSKNOT.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 DR NON TER 1  
 FT SEQUENCE 110 AA; 12713 MW; B81B79AC08D89F06 CRC64;

Query Match 88.6%; Score 101; DB 11; Length 110;  
 Best Local Similarity 90.0%; Pred. No. 3.9e-09;  
 Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGOKSHVIFKMDVY 20  
 |||||  
 DB 1 APTTEGOKSHVIFKMDVY 20

## RESULT 3

0912E1 PRELIMINARY; PRT; 190 AA.

AC 0912E1; PRELIMINARY; PRT; 190 AA.  
 DT 01-DEC-2001 (TREMBlrel. 19, Created)  
 DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor.  
 GN VEGF.  
 OS Rattus norvegicus (Rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.  
 OX NCBI\_TaxID=10116;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=Sprague-Dawley;  
 RA Marlon S., Lee T.-C.;  
 RT "Cloning of multiple VEGF splice variants from hypoxic neonatal rat  
 RT cardiomyocytes.";

RL Submitted (APR-2001) to the EMBL/GenBank/DBJ databases.

DR EMBL; AY033506; AAL07526.1; -.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 DR SEQUENCE 190 AA; 22396 MW; 589374010441F377 CRC64;

Query Match 88.6%; Score 101; DB 11; Length 190;  
 Best Local Similarity 90.0%; Pred. No. 6.9e-09;  
 Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGOKSHVIFKMDVY 20  
 |||||  
 DB 27 APTTEGOKSHVIFKMDVY 46

## RESULT 4

090X39 PRELIMINARY; PRT; 190 AA.

AC 090X39; PRELIMINARY; PRT; 190 AA.  
 DT 01-MAY-2000 (TREMBlrel. 13, Created)  
 DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor.  
 GN VEGF.  
 OS Spalax leucodon ehrenbergi (Ehrenberg's mole rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Spalacinae;  
 OC Nannospalax.  
 OX NCBI\_TaxID=30637;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC MEDLINE=99313148; PubMed=10386577;  
 RA Avioli A., Resnick M.B., Nevo E., Joel A., Levy A.P.;  
 RT "Adaptive hypoxic tolerance in the subterranean mole rat Spalax  
 RT ehrenbergi: the role of vascular endothelial growth factor.";  
 RL FEBS Lett. 452:133-140(1999).  
 DR EMBL; AF166236; AAD56245.1; -.  
 DR HSP; P49763; 1FZV.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 DR SEQUENCE 190 AA; 22488 MW; 2228383BC65FBFE CRC64;

Query Match 79.8%; Score 91; DB 11; Length 190;  
 Best Local Similarity 72.0%; Pred. No. 3.4e-07;  
 Matches 18; Conservative 1; Mismatches 2; Indels 4; Gaps 1;

QY 1 APTTEGOKSHVIFKMDVY---YC 21  
 |||||  
 DB 27 APTTEGOKSHVIFKMDVFRSYC 51

## RESULT 5

08HY70 PRELIMINARY; PRT; 184 AA.

AC 08HY70; PRELIMINARY; PRT; 184 AA.  
 DT 01-MAR-2003 (TREMBlrel. 23, Created)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor A (Fragment).  
 GN Mustela vison (American mink).  
 OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Carnivora; Fissipedia; Mustelidae; Mustelinae;  
 OX NCBI\_TaxID=9667;  
 RN [1]

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RP SEQUENCE FROM N.A.
RA Lopes F.L., Demarais J.A., Gevry N.Y., Ledoux S., Murphy B.D.;
RT "Expression of VEGF isoforms and receptors during implantation in
RL Mustela vison."
DR Submitted (OCT-2002) to the EMBL/Genbank/DBJ databases.
EMBL; AY158156; AAN76365.1; -.
FT NON TER 184
SQ SEQUENCE 184 AA; 21608 MW; BAD47CCB0C146F22 CRC64;

Query Match 72.8%; Score 83; DB 6; Length 184;
Best Local Similarity 75.0%; Pred. No. 7.2e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Qy 1 APTEGKSHVIFKMDVY 20
Db 27 APMAEGKHPEHVVKFMDVY 46

RESULT 6
Q9SLQ4 PRELIMINARY; PRT; 189 AA.
AC Q9SLQ4;
DT 01-DEC-2001 (TREMBlrel. 19, Created)
DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)
DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)
DE Vascular endothelial growth factor.
OS Felis silvestris catus (Cat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Feliidae; Felis.
OX NCBI_TaxID=9685;
RN [1]
RP SEQUENCE FROM N.A.
RA Koga L., Kobayashi Y., Yazawa M., Masuda K., Ohno K., Tsujimoto H.;
RT "Nucleotide sequence and expression of the feline vascular endothelial
RT growth factor."
RL Submitted (SSP-2001) to the EMBL/Genbank/DBJ databases.
DR EMBL; AB071947; BAB68520.1; -.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
SQ SEQUENCE 189 AA; 22193 MW; CIB4646759AB3FD6 CRC64;

Query Match 70.2%; Score 80; DB 6; Length 189;
Best Local Similarity 70.0%; Pred. No. 2.4e-05;
Matches 14; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

Qy 1 APTEGKSHVIFKMDVY 20
Db 27 APMAEGKHPEHVVKFMDVY 46

RESULT 7
Q77643 PRELIMINARY; PRT; 190 AA.
AC Q77643;
DT 01-NOV-1998 (TREMBlrel. 08, Created)
DT 01-NOV-1998 (TREMBlrel. 08, Last sequence update)
DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)
DE Vascular endothelial growth factor.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RA STRAIN=Columbia-Rambouillet;
RA Cheung C.Y., Brace R.A.;
RT "Ovine vascular endothelial growth factor: Nucleotide sequence and

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RT expression in fetal tissues."
RL Growth Factors 0:0-0(1998).
DR EMBL; AF071015; AAC33608.1; -.
DR HSSP; P49763; IFTZ.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
SQ SEQUENCE 190 AA; 22342 MW; OD5E3B3B5C3E739 CRC64;

Query Match 69.3%; Score 79; DB 6; Length 190;
Best Local Similarity 75.0%; Pred. No. 3.5e-05;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Qy 1 APTEGKSHVIFKMDVY 20
Db 27 APMAEGGCKPEHVVKFMDVY 46

RESULT 8
Q8SPZ9 PRELIMINARY; PRT; 124 AA.
AC Q8SPZ9;
DT 01-JUN-2002 (TREMBlrel. 21, Created)
DT 01-JUN-2002 (TREMBlrel. 21, Last sequence update)
DT 01-OCT-2002 (TREMBlrel. 22, Last annotation update)
DE Vascular endothelial growth factor (Fragment).
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suidae; Sus.
OX NCBI_TaxID=9623;
RN [1]
RP SEQUENCE FROM N.A.
RA TISSUE=Myocardium;
RA Yuan H., Li J.;
RT "The expression of VEGF in porcine collateral-dependent myocardial by
RT exercise training."
RL Submitted (DEC-2001) to the EMBL/Genbank/DBJ databases.
DR EMBL; AF41807; AAL85286.1; -.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
FT NON TER 124
SQ SEQUENCE 124 AA; 14552 MW; 2E1C1A009E67C9C9 CRC64;

Query Match 65.8%; Score 75; DB 6; Length 124;
Best Local Similarity 81.2%; Pred. No. 0.00011;
Matches 13; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

Qy 5 EGEGKSHVIFKMDVY 20
Db 3 EGDKPEHVVKFMDVY 18

RESULT 9
Q9WZB1 PRELIMINARY; PRT; 118 AA.
AC Q9WZB1;
DT 01-OCT-2000 (TREMBlrel. 15, Created)
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)
DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)
DE Vascular endothelial growth factor (Fragment).
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;

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RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Placental artery endothelium;  
 RA Zheng J., Tsai S.C., Magness R.R.;  
 RT "Growth factor expression in ovine fetal placental artery endothelial  
 cell";  
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF250375; AAF75258.1; -.  
 DR HSSP; P49763; 1PZY.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 FT NON TER  
 SQ SEQUENCE 118 AA; 13931 MW; 757DC53AA56378A6 CRC64;  
 Query Match 60.5%; Score 69; DB 6; Length 118;  
 Best Local Similarity 81.2%; Pred. No. 0.001;  
 Matches 13; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

## RESULT 10

ID Q96KJ0 PRELIMINARY; PRT; 191 AA.  
 AC Q96KJ0;  
 DT 01-DEC-2001 (TREMBLrel. 19, Created)  
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
 DE 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor 165b.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 NC NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Kidney;  
 RA Sugiono M., Winkler M., Gyllatt D., Harper S.J., Bates D.O.;  
 RT "A new isoform of vascular endothelial growth factor mRNA is down-  
 regulated in renal tumors";  
 RL (In) Unknown A. (eds);  
 RL Proceedings of the 7th World Congress on Microcirculation, pp.3-3,  
 Sydney, Australia (2001).  
 DR EMBL; AF430806; AAL27435.1; -.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 SQ SEQUENCE 191 AA; 22258 MW; D25243B540AC79BD CRC64;

Query Match 57.5%; Score 65.5; DB 4; Length 191;  
 Best Local Similarity 66.7%; Pred. No. 0.0067;  
 Matches 14; Conservative 1; Mismatches 5; Indels 1; Gaps 1;

QY 1 APTTE-GEOKSHVYKFMVDY 20  
 DB 27 APMAEGGQGNHHEVYKFMVDY 47

## RESULT 11

ID Q96L82 PRELIMINARY; PRT; 191 AA.  
 AC Q96L82;  
 DT 01-DEC-2001 (TREMBLrel. 19, Created)  
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
 DT 01-OCT-2002 (TREMBLrel. 22, Last annotation update)

DE Vascular endothelial growth factor.  
 GN VEGF.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 NC NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Liu J., Peng X., Yuan J., Qiang B.;  
 RT "Cloning of vascular endothelial growth factor (VEGF) cDNA";  
 RL Submitted (JUL-2001) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY047581; AAK95847.1; -.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 SQ SEQUENCE 191 AA; 22314 MW; CCE57097DD3779BD CRC64;

Query Match 57.5%; Score 65.5; DB 4; Length 191;  
 Best Local Similarity 66.7%; Pred. No. 0.0067;  
 Matches 14; Conservative 1; Mismatches 5; Indels 1; Gaps 1;

QY 1 APTTE-GEOKSHVYKFMVDY 20  
 DB 27 APMAEGGQGNHHEVYKFMVDY 47

## RESULT 12

ID Q95NE5 PRELIMINARY; PRT; 191 AA.  
 AC Q95NE5;  
 DT 01-DEC-2001 (TREMBLrel. 19, Created)  
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
 DT 01-OCT-2002 (TREMBLrel. 22, Last annotation update)  
 DE SIMVEGF165.  
 OS Macaca fascicularis (Cray eating macaque) (Cynomolgus monkey).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
 OC Cercopithecoidea; Macaca.  
 NC NCBI\_TaxID=9541;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=96245208; PubMed=8641836;  
 RA Shima D.T., Gouges A., Miller J.W., Tolentino M., Robinson G.,  
 RA Adams A.P., D'Amore P.A.;  
 RT "Cloning and mRNA expression of vascular endothelial growth factor in  
 ischemic retinas of Macaca fascicularis";  
 RL Invest. Ophthalmol. Vis. Sci. 37:1334-1340(1996).  
 DR EMBL; S82167; AAB47118.1; -.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 SQ SEQUENCE 191 AA; 22314 MW; CCE57097DD3779BD CRC64;

Query Match 57.5%; Score 65.5; DB 6; Length 191;  
 Best Local Similarity 66.7%; Pred. No. 0.0067;  
 Matches 14; Conservative 1; Mismatches 5; Indels 1; Gaps 1;

QY 1 APTTE-GEOKSHVYKFMVDY 20  
 DB 27 APMAEGGQGNHHEVYKFMVDY 47

## RESULT 13

ID Q9BDP7 PRELIMINARY; PRT; 126 AA.  
 AC Q9BDP7;  
 DT 01-JUN-2001 (TREMBLrel. 17, Created)  
 DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)



DT 01-MAR-2003 (Tremblrel. 23, last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 OS Macaca mulatta (Rhesus macaque).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
 CC Cercopithecoidea; Macaca.  
 NCBI\_TaxID=9544;  
 RN [1]

RP SEQUENCE FROM N.A.  
 RA Hazard T.M., Nayak N.R., Jia Y., Stouffer R.L.;  
 RT "Rhesus macaque VEGF mRNA sequence."  
 RL Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.

DR EMBL; AF339737; AAK26379.1; -  
 DR HSSP; P49763; 1FZV.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF; 1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 FT NON\_TER 1 1  
 FT SEQUENCE 126 126

Query Match 53.5%; Score 61; DB 6; Length 126;  
 Best Local Similarity 73.3%; Pred. No. 0.025;  
 Matches 11; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 6 GEGOKSHVYKFMVY 20  
 DB 26 GGNHHEVYKFMVY 40

RESULT 14  
 ID 042571 PRELIMINARY; PRT; 148 AA.

AC 042571;  
 DT 01-JAN-1998 (Tremblrel. 05, Created)

DT 01-JAN-1998 (Tremblrel. 05, last sequence update)  
 DT 01-MAR-2003 (Tremblrel. 23, last annotation update)

DE Vascular endothelial growth factor 122.  
 GN VEGF.

OS Xenopus laevis (African clawed frog).  
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;

CC Xenopodinae; Xenopus.  
 NCBI\_TaxID=8355;  
 RN [1]

RP SEQUENCE FROM N.A.  
 RA Cleaver O., Tonissen K.F., Saha M.S., Krieg P.A.;  
 RT "Neovascularization of the Xenopus embryo."  
 RL Dev. Dyn. 0:0-0(1997).  
 DR EMBL; AF008593; AAB63679.1; -  
 DR HSSP; P49763; 1FZV.  
 DR InterPro: IPR002400; GF\_cysknob.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF; 1.  
 DR PRINTS; PR00438; GFCYSKNOT.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 SQ SEQUENCE 148 AA; 17234 MW; 4AD153CA2F8B1E95 CRC64;

Query Match 43.9%; Score 50; DB 13; Length 148;  
 Best Local Similarity 56.2%; Pred. No. 2.1;  
 Matches 9; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 5 GEGOKSHVYKFMVY 20  
 DB 32 GGDHKEVYKFLKY 47

RESULT 15

ID 042572 PRELIMINARY; PRT; 194 AA.

AC 042572;  
 DT 01-JAN-1998 (Tremblrel. 05, Created)

DT 01-JAN-1998 (Tremblrel. 05, last sequence update)  
 DT 01-MAR-2003 (Tremblrel. 23, last annotation update)

DE Vascular endothelial growth factor 196.  
 GN VEGF.

OS Xenopus laevis (African clawed frog).  
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;

CC Xenopodinae; Xenopus.  
 NCBI\_TaxID=8355;  
 RN [1]

RP SEQUENCE FROM N.A.  
 RA Cleaver O., Tonissen K.F., Saha M.S., Krieg P.A.;  
 RT "Neovascularization of the Xenopus embryo."  
 RL Dev. Dyn. 0:0-0(1997).  
 DR EMBL; AF008594; AAB63680.1; -  
 DR HSSP; P49763; 1FZV.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF; 1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 SQ SEQUENCE 194 AA; 22672 MW; 85D7BEC7CEFE178 CRC64;

Query Match 43.9%; Score 50; DB 13; Length 194;  
 Best Local Similarity 56.2%; Pred. No. 2.8;  
 Matches 9; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 5 GEGOKSHVYKFMVY 20  
 DB 32 GGDHKEVYKFLKY 47

Search completed: January 30, 2004, 11:44:40  
 Job time : 22.7538 secs





PA (ENTR-) ENTREMED INC.  
 XX  
 XX Holaday JW, Ruiz A, Madsen U;  
 XX  
 XX WPI; 2000-594263/56.  
 DR  
 XX An immunogenic composition useful for treating cancer or  
 PT hyperproliferative disorders comprises an immunogenic peptide fragment  
 PT of fibroblast growth factor and/or vascular endothelial growth factor -  
 XX  
 PS Claim 13; Page 28; 95pp; English.  
 CC AAB18542-51 represent immunogenic peptide fragments of fibroblast  
 CC growth factor (FGF) and/or vascular endothelial growth factor (VEGF).  
 CC The peptides are used to produce immunogenic compositions. The  
 CC immunogenic composition is used for treating cancer or  
 CC hyperproliferative disorders, especially haemangioma, solid tumours,  
 CC blood borne tumours, leukaemia, metastasis, telangiectasia, psoriasis,  
 CC scleroderma, pyogenic granuloma, myocardial angiogenesis, Crohn's  
 CC disease, plaque neovascularisation, arteriovenous malformations,  
 CC corneal diseases, rubecosis, neovascular glaucoma, diabetic retinopathy,  
 CC retrolental fibroplasia, arthritis, diabetic neovascularisation, macular  
 CC degeneration, wound healing, peptic ulcer, Helicobacter related  
 CC diseases, fractures, keloids, vasculogenesis, hematopoiesis, ovulation,  
 CC menstruation, placentaion and cat scratch fever.  
 CC  
 SQ Sequence 41 AA;  
 QY  
 Query Match 100.0%; Score 237; DB 21; Length 41;  
 Best Local Similarity 100.0%; Pred. No. 1e-18;  
 Matches 41; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 Db 1 CERRHLPVQTCCKSCKNTDSRCRKAROLENERTCCKDKPRR 41  
 1 CERRHLPVQTCCKSCKNTDSRCRKAROLENERTCCKDKPRR 41  
 RESULT 2  
 AAE15417 standard; Protein; 51 AA.  
 XX  
 AC AAE15417;  
 XX  
 DT 12-MAR-2002 (first entry)  
 DE Human vascular endothelial growth factor 165 C-terminal protein fragment.  
 XX  
 KW Human; prophyllaxis; therapy; cellular proliferation; lysyl oxidase; LO;  
 KW microorganism infection; angiogenesis; replication; teratocarcinoma;  
 KW germ cell tumour; osteosarcoma; fibrosarcoma; angiodenetic disease; AIDS;  
 KW acquired immune deficiency syndrome; hyperplastic disease; inflammation;  
 KW cancer; melanoma; lesion; wound; HIV-1; human immunodeficiency virus;  
 KW vascular endothelial growth factor; VEGF165.  
 XX  
 OS Undifferentiated.  
 XX  
 FT Key Location/Qualifiers  
 FT Domain 9..51  
 FT /note="Lysine and arginine-rich basic domain"  
 PN WO200185157-A1.  
 XX  
 PD 15-NOV-2001.  
 XX  
 PF 10-MAY-2001; 2001WO-US15191.  
 XX  
 PR 10-MAY-2000; 2000US-202568P.  
 XX  
 PA (UTBO-) UNIV BOSTON.  
 XX  
 XX Li W, Kagen HM;  
 PI  
 XX WPI; 2002-062187/08.  
 DR

XX  
 XX Composition for prophyllaxis and treatment of a condition associated  
 PT with abnormal cellular proliferation, angiogenesis or microorganism  
 PT infection, comprises active portion of an inhibitor, preferably lysyl  
 PT oxidase -  
 XX  
 PS Disclosure; Fig 1; 97pp; English.  
 CC The patent discloses compositions and methods for prophyllaxis and  
 CC treatment of conditions associated with abnormal cellular proliferation,  
 CC angiogenesis or microorganism infection. The composition comprises an  
 CC active portion of an inhibitor, preferably lysyl oxidase (LO) which  
 CC inactivates and oxidises a growth factor, angiogenic factor or a trans-  
 CC activator for replication of the microorganism. The compositions of  
 CC the invention are useful for prophyllaxis and treatment of conditions  
 CC such as cancers of the breast, colon, renal, prostate, ovary, lung,  
 CC brain, uterus, skin, embryo carcinoma, teratocarcinoma, germ cell  
 CC tumour, osteosarcoma, fibrosarcoma, melanoma, angiodenetic diseases,  
 CC AIDS (acquired immune deficiency syndrome)-associated malignancies,  
 CC other tumours and hyperplastic diseases with or without inflammation.  
 CC It is also useful for treating diseases associated with angiogenesis,  
 CC abnormal cellular proliferation, preferably human cell proliferation  
 CC (e.g., tumour, lesion or wound), angiogenesis or conditions associated  
 CC with microorganism infection such as AIDS caused by HIV-1. It is useful  
 CC for modulating cellular proliferation and angiogenesis by contacting  
 CC mitogenic and angiogenic factor and determining regulation of cell  
 CC proliferation. The present sequence is vascular endothelial growth  
 CC factor (VEGF) 165 C-terminal protein fragment. VEGF is a substrate  
 CC for LO. The oxidation of lysine residues of VEGF by LO dramatically  
 CC reduces their mitogenic potential and thus inhibits normal and tumour  
 CC cell growth.  
 CC  
 SQ Sequence 51 AA;  
 QY  
 Query Match 86.9%; Score 206; DB 23; Length 51;  
 Best Local Similarity 90.9%; Pred. No. 2.7e-15;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;  
 Db 2 ERRHLPV---QTCCKSCKNTDSRCRKAROLENERTCCKDKPRR 41  
 8 ERRHLPVQDPQTCCKSCKNTDSRCRKAROLENERTCCKDKPRR 51  
 RESULT 3  
 AAE15418 standard; Protein; 75 AA.  
 XX  
 AC AAE15418;  
 XX  
 DT 12-MAR-2002 (first entry)  
 DE Human vascular endothelial growth factor 189 C-terminal protein fragment.  
 XX  
 KW Human; prophyllaxis; therapy; cellular proliferation; lysyl oxidase; LO;  
 KW microorganism infection; angiogenesis; replication; teratocarcinoma;  
 KW germ cell tumour; osteosarcoma; fibrosarcoma; angiodenetic disease; AIDS;  
 KW acquired immune deficiency syndrome; hyperplastic disease; inflammation;  
 KW cancer; melanoma; lesion; wound; HIV-1; human immunodeficiency virus;  
 KW vascular endothelial growth factor; VEGF189.  
 XX  
 OS Undifferentiated.  
 XX  
 FT Key Location/Qualifiers  
 FT Domain 2..75  
 FT /note="Lysine and arginine-rich basic domain"  
 PN WO200185157-A1.  
 XX  
 PD 15-NOV-2001.  
 XX  
 PF 10-MAY-2001; 2001WO-US15191.  
 XX  
 PR 10-MAY-2000; 2000US-202568P.  
 XX

XX (UYBO-) UNIV BOSTON.  
 PA Li W, Kagen HM;  
 PI  
 XX WPI; 2002-062187/08.  
 DR  
 XX Composition for prophylaxis and treatment of a condition associated  
 PT with abnormal cellular proliferation, angiogenesis or microorganism  
 PT infection, comprises active portion of an inhibitor, preferably lysyl  
 PT oxidase -  
 PS  
 XX Disclosure; Fig 1; 97pp; English.  
 CC The patent discloses compositions and methods for prophylaxis and  
 CC treatment of conditions associated with abnormal cellular proliferation,  
 CC angiogenesis or microorganism infection. The composition comprises an  
 CC active portion of an inhibitor, preferably lysyl oxidase (LO) which  
 CC inactivates and oxidises a growth factor, angiogenic factor or a trans-  
 CC activator for replication of the microorganism. The compositions of  
 CC the invention are useful for prophylaxis and treatment of conditions  
 CC such as cancers of the breast, colon, renal, prostate, ovary, lung,  
 CC brain, uterus, skin, embryo carcinoma, teratocarcinoma, germ cell  
 CC tumour, osteosarcoma, fibrosarcoma, melanoma, angiolemic diseases,  
 CC AIDS (acquired immune deficiency syndrome)-associated malignancies,  
 CC other tumours and hyperplastic diseases with or without inflammation.  
 CC It is also useful for treating diseases associated with angiogenesis,  
 CC abnormal cellular proliferation, preferably human cell proliferation  
 CC (e.g., tumour, lesion or wound), angiogenesis or conditions associated  
 CC with microorganism infection such as AIDS caused by HIV-1. It is useful  
 CC for modulating cellular proliferation and angiogenesis by contacting  
 CC mitogenic and angiogenic factor and determining regulation of cell  
 CC proliferation. The present sequence is vascular endothelial growth  
 CC factor (VEGF) 189 C-terminal protein fragment. VEGF is a substrate  
 CC for LO. The oxidation of lysine residues of VEGF by LO dramatically  
 CC reduces their mitogenic potential and thus inhibits normal and tumour  
 CC cell growth.  
 CC  
 XX Sequence 75 AA;  
 SQ  
 Query Match 86.9%; Score 206; DB 23; Length 75;  
 Best Local Similarity 90.9%; Pred. No. 3.8e-15;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;  
 QY 2 ERRKLFV--QTCKSGKNTDSRCKAROLF-NERTCCKDKPRR 41  
 DB 32 ERRKLFVQDPQTCCKSCKNTDSRCKAROLF-NERTCCKDKPRR 75  
 RESULT 4  
 AAE15419  
 ID AAE15419 standard; Protein; 92 AA.  
 XX AAE15419;  
 AC  
 XX  
 XX 12-MAR-2002 (first entry)  
 DT  
 XX Human vascular endothelial growth factor 206 C-terminal protein fragment.  
 DE  
 XX Human; prophylaxis; therapy; cellular proliferation; lysyl oxidase; LO;  
 XX microorganism infection; angiogenesis; replication; teratocarcinoma;  
 KW germ cell tumour; osteosarcoma; fibrosarcoma; angiolemic diseases; AIDS;  
 KW acquired immune deficiency syndrome; hyperplastic disease; inflammation;  
 KW cancer; melanoma; lesion; wound; HIV-1; human immunodeficiency virus;  
 KW vascular endothelial growth factor; VEGF206.  
 XX  
 XX Undifferentiated.  
 OS  
 XX  
 XX WO200105157-A1.  
 PN  
 XX 15-NOV-2001.  
 PD  
 XX 10-MAY-2001; 2001WO-US15191.  
 PF  
 XX

XX 10-MAY-2000; 2000US-202568P.  
 PR  
 XX (UYBO-) UNIV BOSTON.  
 XX PA  
 XX Li W, Kagen HM;  
 PI  
 XX WPI; 2002-062187/08.  
 DR  
 XX Composition for prophylaxis and treatment of a condition associated  
 PT with abnormal cellular proliferation, angiogenesis or microorganism  
 PT infection, comprises active portion of an inhibitor, preferably lysyl  
 PT oxidase -  
 PS  
 XX Disclosure; Fig 1; 97pp; English.  
 CC The patent discloses compositions and methods for prophylaxis and  
 CC treatment of conditions associated with abnormal cellular proliferation,  
 CC angiogenesis or microorganism infection. The composition comprises an  
 CC active portion of an inhibitor, preferably lysyl oxidase (LO) which  
 CC inactivates and oxidises a growth factor, angiogenic factor or a trans-  
 CC activator for replication of the microorganism. The compositions of  
 CC the invention are useful for prophylaxis and treatment of conditions  
 CC such as cancers of the breast, colon, renal, prostate, ovary, lung,  
 CC brain, uterus, skin, embryo carcinoma, teratocarcinoma, germ cell  
 CC tumour, osteosarcoma, fibrosarcoma, melanoma, angiolemic diseases,  
 CC AIDS (acquired immune deficiency syndrome)-associated malignancies,  
 CC other tumours and hyperplastic diseases with or without inflammation.  
 CC It is also useful for treating diseases associated with angiogenesis,  
 CC abnormal cellular proliferation, preferably human cell proliferation  
 CC (e.g., tumour, lesion or wound), angiogenesis or conditions associated  
 CC with microorganism infection such as AIDS caused by HIV-1. It is useful  
 CC for modulating cellular proliferation and angiogenesis by contacting  
 CC mitogenic and angiogenic factor and determining regulation of cell  
 CC proliferation. The present sequence is vascular endothelial growth  
 CC factor (VEGF) 206 C-terminal protein fragment. VEGF is a substrate  
 CC for LO. The oxidation of lysine residues of VEGF by LO dramatically  
 CC reduces their mitogenic potential and thus inhibits normal and tumour  
 CC cell growth.  
 CC  
 XX Sequence 92 AA;  
 SQ  
 Query Match 86.9%; Score 206; DB 23; Length 92;  
 Best Local Similarity 90.9%; Pred. No. 4.5e-15;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;  
 QY 2 ERRKLFV--QTCKSGKNTDSRCKAROLF-NERTCCKDKPRR 41  
 DB 49 ERRKLFVQDPQTCCKSCKNTDSRCKAROLF-NERTCCKDKPRR 92  
 RESULT 5  
 AAR10911  
 ID AAR10911 standard; Protein; 164 AA.  
 XX AAR10911;  
 AC  
 XX  
 XX 25-MAR-2003 (updated)  
 DT  
 XX 08-MAY-1991 (first entry)  
 DT  
 XX Bovine vascular endothelial cell growth factor 164.  
 DE  
 XX Bovine; prophylaxis; therapy; cellular proliferation; lysyl oxidase; LO;  
 XX microorganism infection; angiogenesis; replication; teratocarcinoma;  
 KW germ cell tumour; osteosarcoma; fibrosarcoma; angiolemic diseases; AIDS;  
 KW acquired immune deficiency syndrome; hyperplastic disease; inflammation;  
 KW cancer; melanoma; lesion; wound; HIV-1; human immunodeficiency virus;  
 KW vascular endothelial growth factor; VEGF164.  
 XX  
 XX Bos taurus.  
 OS  
 XX  
 XX WO9102058-A.  
 PN  
 XX 21-FEB-1991.  
 PD  
 XX 27-JUL-1990; 90WO-US04227.  
 PF  
 XX

PR 14-DEC-1989; 89US-0450883.  
 PR 27-JUL-1989; 89US-0387545.  
 PA (CALD ) CALIFORNIA BIOTECHNOLOGY INC.  
 XX  
 XX  
 PI Tischer ER, Abraham, Fiddes JC, Mitchell RL;  
 XX  
 DR MPI; 1991-073534/10.  
 DR N-PSDB; AAQ10791.  
 XX  
 PT DNA encoding vascular endothelial cell growth factor - used for  
 PT producing the factor for angiogenesis and re-endothelialisation  
 PT in wound healing  
 XX  
 PS Disclosure; Fig 6(1-3); 94pp; English.  
 XX  
 CC Bovine follicle stellate cells were used in the process of  
 CC obtaining cDNA encoding bVEGF (164 amino acids from). The probes  
 CC represented in AAQ10806 and -07 were used in the screening procedures.  
 CC See AAQ10796 for bVEGF120 which is obtained by alternative splicing of  
 CC this sequence, i.e. bases 342-473 (amino acids 115-158) are spliced.  
 CC The product can be used for angiogenesis and re-endothelialisation  
 CC of inner vascular surfaces in wound healing, e.g. treatment of full-  
 CC thickness wounds such as dermal ulcers, venous ulcers and diabetic  
 CC ulcers, burns, in surgery, in balloon angioplasty and for the in  
 CC vitro culturing of endothelial cells. Hybrid growth factors of PDGF  
 CC and VEGF can exhibit a mitogenic profile between each factor and  
 CC can be used for wound healing or as inhibitors of angiogenesis for  
 CC e.g. preventing the growth of tumours.  
 CC VEGF analogues in which CYS residues are substd. are more stable.  
 CC See also AAQ10791-93; AAQ10796-97; AAQ10806-08 and AAQ11099.  
 CC (Updated on 25-MAR-2003 to correct PA field.)  
 CC  
 SQ Sequence 164 AA;

Query Match 86.9%; Score 206; DB 12; Length 164;  
 Best Local Similarity 90.9%; Pred. No. 7.6e-15;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKHLFV---QTCKSCKNTDSRCKARQLE-NERTCRDCKPRR 41  
 DB 121 ERRKHLFVQDPQTCKSCKNTDSRCKARQLEINERTCRDCKPRR 164

## RESULT 6

AA38920 standard; Protein; 164 AA.

AA38920;

25-MAR-2003 (updated)  
 28-OCT-1993 (first entry)

Bovine VEGF-164.

Angiogenesis; wound healing; mitogen; vascular endothelial cells;  
 Vascular Endothelial Cell Growth Factor; bVEGF-164; bVEGF-120.

Bos.

Key Location/Qualifiers  
 114..158

Region /note="encoded by exon which is absent in the  
 alternatively spliced coding sequence  
 which encodes bVEGF-120"

US5219739-A.

15-JUN-1993.

27-JUL-1990; 90US-0559041.

27-JUL-1989; 89US-0387545.

PR 14-DEC-1989; 89US-0450883.  
 PR 27-JUL-1990; 90US-0559041.  
 PA (SCIO-) SCIOS NOVA INC.  
 XX  
 XX  
 PI Abraham JA, Fiddes JC, Mitchell RL, Tischer EG;  
 XX  
 DR MPI; 1993-205302/25.  
 DR P-PSDB; AAQ44259.  
 XX  
 PT Isolated DNA sequences, expression vectors and transformant cells  
 PT - used for large scale prodn. of vascular endothelial cell growth  
 PT factor, for treating wounds in which neo-vascularisation is  
 PT required  
 XX  
 PS Example 4 and Claim 1; Fig 6; 40pp; English.  
 XX  
 CC The sequence of AAQ44259 contains an open reading frame corresponding  
 CC to the 164 amino acid bovine vascular endothelial cell growth  
 CC factor (bVEGF-164; i.e. AA38920). Alternative splicing of the  
 CC sequence gives a shorter coding sequence which encodes the 120  
 CC amino acid bVEGF (see AA38916).  
 CC (Updated on 25-MAR-2003 to correct PF field.)  
 CC  
 SQ Sequence 164 AA;

Query Match 86.9%; Score 206; DB 14; Length 164;  
 Best Local Similarity 90.9%; Pred. No. 7.6e-15;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKHLFV---QTCKSCKNTDSRCKARQLE-NERTCRDCKPRR 41  
 DB 121 ERRKHLFVQDPQTCKSCKNTDSRCKARQLEINERTCRDCKPRR 164

## RESULT 7

AA38921 standard; Protein; 165 AA.

AA38921;

25-MAR-2003 (updated)  
 28-OCT-1993 (first entry)

Human VEGF-165.

Angiogenesis; wound healing; mitogen; vascular endothelial cells;  
 Vascular Endothelial Cell Growth Factor; hVEGF-165; hVEGF-121.

Homo sapiens.

Key Location/Qualifiers  
 7

Misc-difference /note="inserted amino acid relative to bVEGF"  
 Region 115..159  
 /note="replaced by Lys in hVEGF-121"

US5219739-A.

15-JUN-1993.

27-JUL-1990; 90US-0559041.

27-JUL-1989; 89US-0387545.

14-DEC-1989; 89US-0450883.

27-JUL-1990; 90US-0559041.

(SCIO-) SCIOS NOVA INC.

Abraham JA, Fiddes JC, Mitchell RL, Tischer EG;

WPI; 1993-205302/25.

N-PSDB; AAQ44260.

```

PT XX Isolated DNA sequences, expression vectors and transformant cells
PT PT - used for large scale prodn. of vascular endothelial cell growth
PT PT factor, for treating wounds in which neo-vascularisation is
PT PT required
PS XX
PS PS Example 7; Fig 7; 40pp; English.
CC CC
CC CC The sequence of AAQ44260 contains an open reading frame corresponding
CC CC to the 165 amino acid human vascular endothelial cell growth
CC CC factor (hVEGF-165, see AAR38921). Alternative splicing of the
CC CC sequence gives a shorter coding sequence which encodes the 121
CC CC amino acid hVEGF (see AAR42607). The full-length coding sequences can
CC CC be generated using PCR with human foetal vascular smooth muscle
CC CC poly-A+ RNA as template.
CC CC (Updated on 25-MAR-2003 to correct PF field.)
CC CC
SQ XX Sequence 165 AA;
Query Match 86.9%; Score 206; DB 14; Length 165;
      Basic Local Similarity 90.9%; Pred. No. 7,6e-15;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2
OY 2 ERRKILFV---QTCKSCGNTDSRCRKARQLN-NERTCRDCKPRR 41
DB 122 ERRKILFVQDPOTCKCKSCNTDSRCRKARQLNERTCRDCKPRR 165

RESULT 8
AAW31085
ID AAW31085 standard; Protein; 165 AA.
XX AC AAW31085;
XX XX
XX XX 16-JAN-1998 (first entry)
DE XX
DE XX Vascular endothelial growth factor variant used in drug screening.
XX XX
XX XX VEGF; vascular endothelial growth factor; variant; mutant;
XX XX substitution; drug screening; kinase domain binding region; KDR;
XX XX FMS-like tyrosine kinase binding region; Flt-1; drug screening;
XX XX testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;
XX XX neoplasia.
XX XX
XX XX Homo sapiens.
XX OS Synthetic.
OS XX
XX XX
XX XX Key Location/Qualifiers
FH FT Misc-difference 63 /note= "wild-type Asp replaced by Ala"
FT FT Misc-difference 64 /note= "wild-type Glu replaced by Ala"
FT FT Misc-difference 67 /note= "wild-type Glu replaced by Ala"
FT FT
FT XX
XX XX W09708313-Al.
XX XX
XX XX 06-MAR-1997.
XX PD
XX PD 23-AUG-1996; 96WO-US13621.
XX PF
XX PF 02-AUG-1996; 96US-0691791.
XX PR 25-AUG-1995; 95US-0002827.
XX PR 05-DEC-1995; 95US-0567200.
XX XX
XX PA (GETH ) GENENTECH INC.
XX XX
XX XX Cunningham BC, Ferrara N, Keyt B, Li B, Nguyen FH;
XX XX Wells JA;
XX XX
XX XX WPI, 1997-179270/16.
XX XX
XX XX Vascular endothelial cell growth factor variant - used to identify

```

PT	candidates having agonistic or antagonistic properties with respect
PT	to KDR and/or FLT receptor binding
PS	Claim 6; Page -; 130pp; English.
XX	
CC	AAWJ1085-WJ1096 are vascular endothelial growth factor (VEGF) variants.
CC	Especially preferred modifications comprise mutations in the kinase
CC	domain binding region (KDR) or the PMS-like tyrosine kinase binding
CC	region (FLT-1). All indicated residues are preferably replaced with
CC	alanine. The variants may be used in an assay for identifying
CC	candidate compositions having agonistic or antagonistic properties
CC	with respect to KDR and/or FLT receptor binding, by measuring the
CC	effect the candidate has on the binding properties of the variants
CC	to the KDR and/or FLT-1 receptors. Compositions identified may be
CC	useful for treating indications where vasculogenesis or angiogenesis
CC	is desired for treatment of an underlying disease state.
CC	N.B. This sequence is not given in the specification, it was created
CC	from a claimed specified mutant of wild-type mature VEGF.
XX	
SQ	Sequence    165 AA;
OY	Query Match                 86.9%; Score 206; DB 18; Length 165; Best Local Similarity    90.9%; Pred. No. 7.6e-15; Matches    40; Conservative    0; Mismatches    0; Indels      4; Gaps      2
Dd	2 ERRHFLV--QTCKSCCKNTDSRCKARQLNEERTCCKDPRR 41       122 ERRHFLVQDPOTCKSCCKNTDSRCKARQLNELNERTCGCDPRR 165
RESULT 9	
AAWJ1086	
ID	AAWJ1086 standard; Protein; 165 AA.
XX	
AC	AAWJ1086;
DT	16-JAN-1998 (first entry)
DE	Vascular endothelial growth factor variant used in drug screening.
XX	
VEGF; vascular endothelial growth factor; variant; mutant;	
KM	substitution; drug screening; kinase domain binding region; KDR;
KM	PMS-like tyrosine kinase binding region; FLT-1; drug screening;
KM	testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;
KX	neoplasia.
XX	
OS	Homo sapiens.
OS	Synthetic.
XX	
FH	Key                               Location/Qualifiers
FT	Misc-difference    82                               /note= "wild-type Arg replaced by Ala"
FT	Misc-difference    84                               /note= "wild-type Lys replaced by Ala"
FT	Misc-difference    86                               /note= "wild-type His replaced by Ala"
FT	
XX	
PN	WO9708313-A1.
XX	
PD	06-MAR-1997.
XX	
PE	23-AUG-1996;    96WO-US13621.
XX	
PR	02-AUG-1996;    96US-0691791.
PR	25-AUG-1995;    95US-0002827.
PR	05-DEC-1995;    95US-0567200.
PA	(GENT ) GENENTECH INC.
XX	
P1	Cunningham BC, Ferrara N, Keyt B, Li B, Nguyen PH,
P1	Wells JA;
XX	
WR	WPI; 1997-179270/16.

xx	Vascular endothelial cell growth factor variant - used to identify
PT	candidates having agonistic or antagonistic properties with respect
FT	to KDR and/or FLT receptor binding
XX	
PS	Claim 6; Page -, 130p; English.
XX	
CC	AAW31087-531096 are vascular endothelial growth factor (VEGF) variants.
CC	Especially preferred modifications comprise mutations in the kinase
CC	domain binding region (KDR) or the FMS-like tyrosine kinase binding
CC	region (FLT-1). All indicated residues are preferably replaced with
CC	alanine. The variants may be used in an assay for identifying
CC	candidate compositions having agonistic or antagonistic properties
CC	with respect to KDR and/or FLT receptor binding, by measuring the
CC	effect the candidate has on the binding properties of the variants
CC	to the KDR and/or FLT-1 receptors. Compositions identified may be
CC	useful for treating indications where vasculogenesis or angiogenesis
CC	is desired for treatment of an underlying disease state.
CC	N.B. This sequence is not given in the specification, it was created
CC	from a claimed specified mutant of wild-type mature VEGF.
XX	
SQ	Sequence    165 AA;
Query Match	86.9%; Score 206; DB 18; Length 165;
Best Local Similarity	90.9%; Pred No. 7.6e-15;
Matches    40; Conservative    0; Mismatches    0; Indels    4; Gaps    2	
Oy	2 ERRKLIV--QTCKSCNMTDSRCARQL-NERTCRDCKERR 41
Dd	122 ERRKLIVODPOTCKSCNMTDSRCARQLNERTCRDCKERR 165
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ID	AAW31087
ID	AAW31087 standard; Protein; 165 AA.
AC	AAW31087;
XX	
DT	16-JAN-1998 (first entry)
XX	
DE	Vascular endothelial growth factor variant used in drug screening.
XX	
KW	VEGF: vascular endothelial growth factor; variant; mutant;
KM	substitution; drug screening; kinase domain binding region; KDR;
KW	FMS-like tyrosine kinase binding region; FLT-1; drug screening;
KV	testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;
KW	neoplasia.
XX	
OS	Homo sapiens.
OS	Synthetic.
XX	
PH	Location/Qualifiers
FT	Misc-difference 63
FT	/note= "wild-type Asp replaced by Ala"
FT	Misc-difference 64
FT	/note= "wild-type Glu replaced by Ala"
FT	Misc-difference 67
FT	/note= "wild-type Glu replaced by Ala"
FT	Misc-difference 82
FT	/note= "wild-type Arg replaced by Ala"
FT	Misc-difference 84
FT	/note= "wild-type Lys replaced by Ala"
FT	Misc-difference 86
FT	/note= "wild-type His replaced by Ala"
XX	
PN	WO9708313-A1.
XX	
PD	06-MAR-1997.
PF	23-AUG-1996; 96WO-US13621.
XX	
PR	02-AUG-1996; 96US-0691791.
PR	25-AUG-1995; 95US-0002827.

PR	05-DEC-1995;	95US-0567200.
XX	(GETH ) GENENTECH INC.	
PA	Cunningham BC, Ferrara N, Keyt B, Li B, Nguyen FH,	
P1	Weils JA;	
PI	WPI; 1997-179270/16.	
XX		
DR	Vascular endothelial cell growth factor variant - used to identify	
PT	candidates having agonistic or antagonistic properties with respect	
PT	to KDR and/or FLT receptor binding	
PS	Claim 6; Page -, 130pp; English.	
XX		
XX	AAMJ1085-W31096 are vascular endothelial growth factor (VEGF) variants.	
CC	Especially preferred modifications comprise mutations in the kinase	
CC	domain binding region (KDR) or the FMS-like tyrosine kinase binding	
CC	region (FLT-1). All indicated residues are preferably replaced with	
CC	alanine. The variants may be used in an assay for identifying	
CC	candidate compositions having agonistic or antagonistic properties	
CC	with respect to KDR and/or FLT receptor binding, by measuring the	
CC	effect the candidate has on the binding properties of the variants	
CC	to the KDR and/or FLT-1 receptors. Compositions identified may be	
CC	useful for treating indications where vasculogenesis or angiogenesis	
CC	is desired for treatment of an underlying disease state.	
CC	N.B. This sequence is not given in the specification, it was created	
CC	from a claimed specified mutant of wild-type mature VEGF.	
XX		
SQ	Sequence 165 AA;	
	Query Match 86.9%; Score 206; DB 19; Length 165;	
	Best Local Similarity 90.9%; Pred. No. 7.6e-15;	
	Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2	
OY	2 ERRKHLFY---QTCKSCSKNTDSRCKARQLN-NERTCGRCDPFR 41	
DB	122 ERRKHLFYQDPQTCKSCSKNTDSRCKARQLN-NERTCGRCDPFR 165	
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ID	AAMJ1088	
XX	AAMJ1088 standard; Protein; 165 AA.	
AC		
XX	AAMJ1088;	
XX		
DT	16-JAN-1998 (first entry)	
XX		
DE	Vascular endothelial growth factor variant used in drug screening.	
XX		
KW	VEGF; vascular endothelial growth factor; variant; mutant;	
KW	substitution; drug screening; kinase domain binding region; KDR;	
KW	FMS-like tyrosine kinase binding region; FLT-1; drug screening;	
KW	testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;	
XX	neoplasia.	
XX		
OS	Homo sapiens.	
OS	Synthetic.	
XX		
FH	Key Location/Qualifiers	
FT	Misc-difference 46 /note= "wild-type Ile replaced by Ala"	
FT	Misc-difference 79 /note= "wild-type Glu replaced by Ala"	
FT	Misc-difference 83 /note= "wild-type Ile replaced by Ala"	
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XX		
PN	WO9708313-A1.	
XX		
PD	06-MAR-1997.	
XX		
FP	23-AUG-1996; 96WO-US13621.	
XX		





FT FT /note= "wild-type Glu replaced by Ala"  
 FT Misc-difference 83  
 FT /note= "wild-type Ile replaced by Ala"  
 XX  
 XX WO9708313-A1.  
 XX  
 XX 06-MAR-1997.  
 XX  
 XX 23-AUG-1996; 96WO-US13621.  
 XX  
 XX 02-AUG-1996; 96US-0691791.  
 XX 25-AUG-1995; 95US-0002827.  
 XX 05-DEC-1995; 95US-0567200.  
 XX  
 XX (GETH ) GENENTECH INC.  
 XX  
 XX Cunningham BC, Ferrara N, Keyt B, Li B, Nguyen FH;  
 PI Wells JA;  
 PI  
 XX WPI; 1997-179270/16.  
 DR  
 XX  
 XX Vascular endothelial cell growth factor variant - used to identify  
 PT candidates having agonistic or antagonistic properties with respect  
 PT to KDR and/or FLT receptor binding  
 XX  
 XX Claim 18; Page -; 130pp; English.  
 XX  
 XX AAW31085-W31096 are vascular endothelial growth factor (VEGF) variants.  
 CC Especially preferred modifications comprise mutations in the kinase  
 CC domain binding region (KDR) or the FMS-like tyrosine kinase binding  
 CC region (FLT-1). All indicated residues are preferably replaced with  
 CC alanine. The variants may be used in an assay for identifying  
 CC candidate compositions having agonistic or antagonistic properties  
 CC with respect to KDR and/or FLT receptor binding, by measuring the  
 CC effect the candidate has on the binding properties of the variants  
 CC to the KDR and/or FLT-1 receptors. Compositions identified may be  
 CC useful for treating indications where vasculogenesis or angiogenesis  
 CC is desired for treatment of an underlying disease state.  
 CC N.B. This sequence is not given in the specification, it was created  
 CC from a claimed specified mutant of wild-type mature VEGF.  
 XX  
 XX Sequence 165 AA;  
 SQ  
 Query Match 86.9%; Score 206; DB 18; Length 165;  
 Best Local Similarity 90.9%; Pred. No. 7.6e-15;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;  
 OY 2 ERRKHLFV---QTCKSCKNTDSRCKARQLE-NERTCRCDKPRR 41  
 Db 122 ERRKHLFVQDPQTCKSCKNTDSRCKARQLEINERTCRCDKPRR 165  
 RESULT 14  
 AAW31091  
 ID AAW31091 standard; Protein; 165 AA.  
 XX  
 XX AAW31091;  
 AC  
 XX  
 XX 16-JAN-1998 (first entry)  
 DT  
 XX  
 XX Vascular endothelial growth factor variant used in drug screening.  
 DE  
 XX  
 XX VEGF; vascular endothelial growth factor; variant; mutant;  
 KW substitution; drug screening; kinase domain binding region; KDR;  
 KW FMS-like tyrosine kinase binding region; FLT-1; drug screening;  
 KW testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;  
 KW neoplasia.  
 XX  
 XX Homo sapiens.  
 OS  
 XX Synthetic.  
 XX  
 XX Key Location/Qualifiers  
 FH Misc-difference 46  
 FT

FT FT /note= "wild-type Ile replaced by Ala"  
 FT Misc-difference 64  
 FT /note= "wild-type Glu replaced by Ala"  
 FT /note= "wild-type Ile replaced by Ala"  
 XX  
 XX WO9708313-A1.  
 XX  
 XX 06-MAR-1997.  
 XX  
 XX 23-AUG-1996; 96WO-US13621.  
 XX  
 XX 02-AUG-1996; 96US-0691791.  
 XX 25-AUG-1995; 95US-0002827.  
 XX 05-DEC-1995; 95US-0567200.  
 XX  
 XX (GETH ) GENENTECH INC.  
 XX  
 XX Cunningham BC, Ferrara N, Keyt B, Li B, Nguyen FH;  
 PI Wells JA;  
 PI  
 XX WPI; 1997-179270/16.  
 DR  
 XX  
 XX Vascular endothelial cell growth factor variant - used to identify  
 PT candidates having agonistic or antagonistic properties with respect  
 PT to KDR and/or FLT receptor binding  
 XX  
 XX Claim 22; Page -; 130pp; English.  
 XX  
 XX AAW31085-W31096 are vascular endothelial growth factor (VEGF) variants.  
 CC Especially preferred modifications comprise mutations in the kinase  
 CC domain binding region (KDR) or the FMS-like tyrosine kinase binding  
 CC region (FLT-1). All indicated residues are preferably replaced with  
 CC alanine. The variants may be used in an assay for identifying  
 CC candidate compositions having agonistic or antagonistic properties  
 CC with respect to KDR and/or FLT receptor binding, by measuring the  
 CC effect the candidate has on the binding properties of the variants  
 CC to the KDR and/or FLT-1 receptors. Compositions identified may be  
 CC useful for treating indications where vasculogenesis or angiogenesis  
 CC is desired for treatment of an underlying disease state.  
 CC N.B. This sequence is not given in the specification, it was created  
 CC from a claimed specified mutant of wild-type mature VEGF.  
 XX  
 XX Sequence 165 AA;  
 SQ  
 Query Match 86.9%; Score 206; DB 18; Length 165;  
 Best Local Similarity 90.9%; Pred. No. 7.6e-15;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;  
 OY 2 ERRKHLFV---QTCKSCKNTDSRCKARQLE-NERTCRCDKPRR 41  
 Db 122 ERRKHLFVQDPQTCKSCKNTDSRCKARQLEINERTCRCDKPRR 165  
 RESULT 15  
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 ID AAW31092 standard; Protein; 165 AA.  
 XX  
 XX AAW31092;  
 AC  
 XX  
 XX 16-JAN-1998 (first entry)  
 DT  
 XX  
 XX Vascular endothelial growth factor variant used in drug screening.  
 DE  
 XX  
 XX VEGF; vascular endothelial growth factor; variant; mutant;  
 KW substitution; drug screening; kinase domain binding region; KDR;  
 KW FMS-like tyrosine kinase binding region; FLT-1; drug screening;  
 KW testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;  
 KW neoplasia.  
 XX  
 XX Homo sapiens.  
 OS  
 XX Synthetic.  
 XX





GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:35:33 ; Search time 17.4513 Seconds  
(without alignments)  
99.405 Million cell updates/sec

Title: US-09-266-543-6

Perfect score: 237  
Sequence: 1 CERRHLFVOTCKSCSKNTD.....RCKARQLENERTCRCCKPRR 41

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 328717 seqs, 42310858 residues

Total number of hits satisfying chosen parameters: 328717

Minimum DB seq length: 0  
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Post-processing: Minimum Match 0%

Maximum Match 100%

Database : Issued Patents, AA:\*

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4: /cgn2\_6/ptodata/1/1aa/6B.COMB.pep:\*  
5: /cgn2\_6/ptodata/1/1aa/PTUS.COMB.pep:\*  
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Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	206	86.9	164	6	Patent No. 5194596
2	206	86.9	164	6	Patent No. 5219739
3	206	86.9	164	6	Patent No. 5219739
4	206	86.9	165	4	Sequence 3, Appli
5	206	86.9	165	4	Sequence 3, Appli
6	206	86.9	165	6	Patent No. 5194596
7	206	86.9	165	6	Patent No. 5219739
8	206	86.9	189	1	Sequence 15, Appl
9	206	86.9	190	2	Sequence 20, Appl
10	206	86.9	190	3	Sequence 31, Appl
11	206	86.9	190	4	Sequence 31, Appl
12	206	86.9	190	6	Patent No. 5332671
13	206	86.9	191	3	Sequence 2, Appli
14	206	86.9	191	3	Sequence 2, Appli
15	206	86.9	191	3	Sequence 2, Appli
16	206	86.9	191	3	Sequence 56, Appl
17	206	86.9	191	4	Sequence 56, Appl
18	206	86.9	191	4	Sequence 56, Appl
19	206	86.9	191	4	Sequence 56, Appl
20	206	86.9	191	4	Sequence 56, Appl
21	206	86.9	191	4	Sequence 56, Appl
22	206	86.9	191	4	Sequence 56, Appl
23	206	86.9	208	4	Patent No. 5332671
24	206	86.9	213	4	Sequence 26, Appl
25	206	86.9	214	3	Sequence 8, Appli
26	206	86.9	214	4	Sequence 35, Appl
27	206	86.9	214	6	Patent No. 5240848

28	206	86.9	215	3	US-08-807-992B-3	Sequence 3, Appli
29	206	86.9	215	3	US-08-586-039B-49	Sequence 49, Appl
30	206	86.9	215	4	US-09-699-769-49	Patent No. 5219739
31	206	86.9	215	6	5219739-22	Patent No. 5240848
32	206	86.9	215	6	5240848-7	Sequence 10, Appl
33	206	86.9	231	5	PCT-US96-09001-10	Sequence 7, Appli
34	206	86.9	232	2	US-08-999-811-7	Sequence 9, Appli
35	206	86.9	232	2	US-08-824-996-9	Sequence 4, Appli
36	206	86.9	232	3	US-08-807-992B-4	Sequence 7, Appli
37	206	86.9	232	3	US-09-042-105-7	Sequence 10, Appl
38	206	86.9	232	4	US-09-574-708A-10	Sequence 4, Appli
39	199	84.0	191	4	US-09-431-888-4	Sequence 20, Appl
40	164	69.2	43	4	US-09-244-583-20	Sequence 29, Appl
41	100	42.2	17	3	US-08-807-992B-7	Sequence 7, Appli
42	89.5	37.8	19	3	US-08-807-992B-13	Sequence 13, Appl
43	89.5	37.8	19	3	US-08-807-992B-16	Sequence 16, Appl
44	89.5	37.8	19	3	US-08-807-992B-30	Sequence 30, Appl
45	89.5	37.8	19	3	US-08-807-992B-30	

#### ALIGNMENTS

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RESULT 1
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; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDES, JOHN
; C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450,883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:17:
; LENGTH: 164
5194596-17

Query Match      86.9%; Score 206; DB 6; Length 164;
Best Local Similarity 90.9%; Pred. No. 1.1e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY      2 ERRKHLFVOTCKSCSKNTDSRCKARQLENERTCRCCKPRR 41
DB      121 ERRKHLFVOTCKSCSKNTDSRCKARQLENERTCRCCKPRR 164

RESULT 2
5219739-17
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDES, JOHN
; C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESG120 AND
; HVEG121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVESG120 AND HVEG121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:17:
; LENGTH: 164
5219739-17

Query Match      86.9%; Score 206; DB 6; Length 164;
Best Local Similarity 90.9%; Pred. No. 1.1e-16;
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Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCKSCKNTDSRCKAROLE-NERTCRCDKPRR 41  
 Db 121 ERRKHLFVQDPQTCCKSCNTDSRCKAROLELNERTCRCDKPRR 164

# RESULT 3

5219739-18  
 Patent No. 5219739  
 APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDES,  
 JOHN C.; MITCHELL, RICHARD L.  
 TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGEP120 AND  
 BVGEP 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN  
 VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGEP120 AND BVGEP121  
 NUMBER OF SEQUENCES: 40  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/07/559,041  
 FILING DATE: 27-JUL-1990  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: 450,883  
 FILING DATE: 14-DEC-1989  
 APPLICATION NUMBER: 387,545  
 FILING DATE: 27-JUL-1989  
 SEQ ID NO: 18:  
 LENGTH: 164  
 5219739-18

Query Match 86.9%; Score 206; DB 6; Length 164;  
 Best Local Similarity 90.9%; Pred. No. 1.1e-16;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCKSCKNTDSRCKAROLE-NERTCRCDKPRR 41  
 Db 121 ERRKHLFVQDPQTCCKSCNTDSRCKAROLELNERTCRCDKPRR 164

# RESULT 4

US-08-882-816-3  
 Sequence 3, Application US/08882816  
 Patent No. 6395707  
 GENERAL INFORMATION:  
 APPLICANT: Zioncheck, Thomas F.  
 APPLICANT: Deguzman, Geraldyn G.  
 APPLICANT: Keck, Rodney G.  
 APPLICANT: Richard, Brigitte M.  
 TITLE OF INVENTION: VARIANTS OF VASCULAR ENDOTHELIAL CELL  
 TITLE OF INVENTION: GROWTH FACTOR HAVING ALTERED PHARMACOLOGICAL PROPERTIES,  
 TITLE OF INVENTION: AND RELATED ASPECTS THEREOF  
 NUMBER OF SEQUENCES: 3  
 CORRESPONDENCE ADDRESS:  
 ADDRESSEE: Flehr Hobach Test Albritton & Herbert LLP  
 STREET: Four Embarcadero Center, Suite 3400  
 CITY: San Francisco  
 STATE: California  
 COUNTRY: United States  
 ZIP: 94111-4187  
 COMPUTER READABLE FORM:  
 MEDIUM TYPE: Floppy disk  
 COMPUTER: IBM PC compatible  
 OPERATING SYSTEM: PC-DOS/MS-DOS  
 SOFTWARE: Patentin Release #1.0, Version #1.30  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/08/882,816  
 FILING DATE: 26-JUN-1997  
 CLASSIFICATION: 536  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 08/802,052  
 FILING DATE: 14-FEB-1997  
 ATTORNEY/AGENT INFORMATION:  
 NAME: Vance, Dolly A.  
 REGISTRATION NUMBER: 39,054

REFERENCE/DOCKET NUMBER: A-64957/WHD/DAV  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: (415) 781-1989  
 TELEFAX: (415) 398-3249  
 TELE: 910 277299  
 INFORMATION FOR SEQ ID NO: 3:  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 165 amino acids  
 TYPE: amino acid  
 STRANDEDNESS: unknown  
 TOPOLOGY: unknown  
 MOLECULE TYPE: protein  
 US-08-882-816-3

Query Match 86.9%; Score 206; DB 4; Length 165;  
 Best Local Similarity 90.9%; Pred. No. 1.2e-16;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCKSCKNTDSRCKAROLE-NERTCRCDKPRR 41  
 Db 122 ERRKHLFVQDPQTCCKSCNTDSRCKAROLELNERTCRCDKPRR 165

# RESULT 5

US-08-802-052B-3  
 Sequence 3, Application US/08802052B  
 Patent No. 6485942  
 GENERAL INFORMATION:  
 APPLICANT: Zioncheck, Thomas F.  
 APPLICANT: Deguzman, Geraldyn G.  
 APPLICANT: Keck, Rodney G.  
 TITLE OF INVENTION: VARIANTS OF VASCULAR ENDOTHELIAL CELL  
 TITLE OF INVENTION: GROWTH FACTOR HAVING ALTERED PHARMACOLOGICAL PROPERTIES,  
 TITLE OF INVENTION: AND RELATED ASPECTS THEREOF  
 NUMBER OF SEQUENCES: 3  
 CORRESPONDENCE ADDRESS:  
 ADDRESSEE: Flehr, Hobach, Test, Albritton & Herbert  
 STREET: Four Embarcadero Center, Suite 3400  
 CITY: San Francisco  
 STATE: California  
 COUNTRY: United States  
 ZIP: 94111-4187  
 COMPUTER READABLE FORM:  
 MEDIUM TYPE: Floppy disk  
 COMPUTER: IBM PC compatible  
 OPERATING SYSTEM: PC-DOS/MS-DOS  
 SOFTWARE: Patentin Release #1.0, Version #1.30  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/08/802,052B  
 FILING DATE: 14-FEB-1997  
 CLASSIFICATION: 435  
 ATTORNEY/AGENT INFORMATION:  
 NAME: Vance, Dolly A.  
 REGISTRATION NUMBER: 39,054  
 REFERENCE/DOCKET NUMBER: A-64069/WHD/DAV  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: (415) 781-1989  
 TELEFAX: (415) 398-3249  
 TELE: 910 277299  
 INFORMATION FOR SEQ ID NO: 3:  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 165 amino acids  
 TYPE: amino acid  
 STRANDEDNESS: unknown  
 TOPOLOGY: unknown  
 MOLECULE TYPE: protein  
 US-08-802-052B-3

Query Match 86.9%; Score 206; DB 4; Length 165;  
 Best Local Similarity 90.9%; Pred. No. 1.2e-16;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCKSCKNTDSRCKAROLE-NERTCRCDKPRR 41

Db 122 ERRKHLFVDPQTCCKSCNTDSRCKARQLEINERTCRCDKPRR 165

RESULT 6  
Patent No. 5194596-18

APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN  
C.; MITCHELL, RICHARD L.  
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL  
GROWTH FACTOR  
NUMBER OF SEQUENCES: 32  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/450,883  
FILING DATE: 14-DEC-1989  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 387,545  
FILING DATE: 27-JUL-1989  
SEQ ID NO: 18:  
LENGTH: 165

Query Match 86.9%; Score 206; DB 6; Length 165;  
Best Local Similarity 90.9%; Pred. No. 1.2e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKHLFV---OTCKSCNTDSRCKARQLE-NERTCRCDKPRR 41  
Db 122 ERRKHLFVDPQTCCKSCNTDSRCKARQLEINERTCRCDKPRR 165

RESULT 7  
Patent No. 5219739-19

APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,  
JOHN C.; MITCHELL, RICHARD L.  
TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESGF120 AND  
HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN  
VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVESGF120 AND HVEGF121  
NUMBER OF SEQUENCES: 40  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/559,041  
FILING DATE: 27-JUL-1990  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 450,883  
FILING DATE: 14-DEC-1989  
APPLICATION NUMBER: 387,545  
FILING DATE: 27-JUL-1989  
SEQ ID NO: 19:  
LENGTH: 165

Query Match 86.9%; Score 206; DB 6; Length 165;  
Best Local Similarity 90.9%; Pred. No. 1.2e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKHLFV---OTCKSCNTDSRCKARQLE-NERTCRCDKPRR 41  
Db 122 ERRKHLFVDPQTCCKSCNTDSRCKARQLEINERTCRCDKPRR 165

RESULT 8  
US-08-469-427A-15

Sequence 15, Application US/08469427A  
Patent No. 5607918  
GENERAL INFORMATION:  
APPLICANT: Eriksson, Ulf  
APPLICANT: Olofsson, Birgitta  
APPLICANT: Alitalo, Kari  
APPLICANT: Pajusola, Katri  
TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR-B AND  
TITLE OF INVENTION: DNA CODING THEREFOR  
NUMBER OF SEQUENCES: 17

## CORRESPONDENCE ADDRESS:

ADDRESSEE: Evenson, McKeown, Edwards & Lenahan  
STREET: 1200 G Street, N.W., Suite 700  
CITY: Washington  
STATE: DC  
ZIP: 20005

## COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent in Release #1.0, Version #1.25

## CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/469,427A  
FILING DATE: 06-JUN-1995  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/397,651  
FILING DATE: 01-MAR-1995

## ATTORNEY/AGENT INFORMATION:

NAME: Evans, Joseph D  
REGISTRATION NUMBER: 26,269  
REFERENCE/DOCKET NUMBER: 41979cp2  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (202) 628-8800  
TELEFAX: (202) 628-8844

## INFORMATION FOR SEQ ID NO: 15:

SEQUENCE CHARACTERISTICS:  
LENGTH: 189 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein

US-08-469-427A-15

Query Match 86.9%; Score 206; DB 1; Length 189;  
Best Local Similarity 90.9%; Pred. No. 1.3e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKHLFV---OTCKSCNTDSRCKARQLE-NERTCRCDKPRR 41  
Db 146 ERRKHLFVDPQTCCKSCNTDSRCKARQLEINERTCRCDKPRR 189

## RESULT 9

Sequence 20, Application US/08569063C  
Patent No. 5928939  
GENERAL INFORMATION:  
APPLICANT: ERIKSSON, Ulf  
APPLICANT: OLOFSSON, Birgitta  
APPLICANT: ALITALO, Kari  
APPLICANT: PAJUSOLA, Katri  
TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR-B AND  
TITLE OF INVENTION: DNA CODING THEREFOR  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Evenson, McKeown, Edwards & Lenahan, P.L.L.C.  
STREET: 1200 G Street, N.W., Suite 700  
CITY: Washington  
STATE: DC  
COUNTRY: USA  
ZIP: 20005

## COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent in Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/569,063C  
FILING DATE: 06-DEC-1995  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/469,427  
FILING DATE: 06-JUN-1995

PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/397,651  
FILING DATE: 01-MAR-1995  
ATTORNEY/AGENT INFORMATION:  
NAME: EVANS, Joseph D  
REGISTRATION NUMBER: 26,269  
REFERENCE/DOCKET NUMBER: 1064/41979CP3  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (202) 628-8800  
TELEFAX: (202) 628-8844  
INFORMATION FOR SEQ ID NO: 20:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 190 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-569-063C-20

Query Match 86.9%; Score 206; DB 2; Length 190;  
Best Local Similarity 90.9%; Pred. No. 1.3e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCKSCSKNTDSRCKARQLE-NERTCRCDKPRR 41  
147 ERRKHLFVQDPQTCKSCSKNTDSRCKARQLELNERTCRCDKPRR 190

Db 147 ERRKHLFVQDPQTCKSCSKNTDSRCKARQLELNERTCRCDKPRR 190

RESULT 10  
US-08-586-039B-31  
Sequence 31, Application US/08586039B  
Patent No. 6140073  
GENERAL INFORMATION:  
APPLICANT: Bayne, Marvin L.  
APPLICANT: Thomas Jr., Kenneth A.  
TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR C  
TITLE OF INVENTION: SUBUNIT  
NUMBER OF SEQUENCES: 49  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Merck & Co., Inc.  
STREET: 126 E. Lincoln Avenue  
CITY: Rahway  
STATE: New Jersey  
COUNTRY: USA  
ZIP: 07065-0900  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Microsoft Word 6  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/586,039B  
FILING DATE: 16-JAN-1996  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 08/124,259  
FILING DATE: 20-SEP-1993  
APPLICATION NUMBER: 07/676,436  
FILING DATE: 28-MAR-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Hand, J. Mark  
REGISTRATION NUMBER: 36,545  
REFERENCE/DOCKET NUMBER: 18361DB  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (908) 594-3905  
TELEFAX: (908) 594-4720  
INFORMATION FOR SEQ ID NO: 31:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 190 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-09-266-543-6

US-08-586-039B-31

Query Match 86.9%; Score 206; DB 3; Length 190;  
Best Local Similarity 90.9%; Pred. No. 1.3e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCKSCSKNTDSRCKARQLE-NERTCRCDKPRR 41  
147 ERRKHLFVQDPQTCKSCSKNTDSRCKARQLELNERTCRCDKPRR 190

Db 147 ERRKHLFVQDPQTCKSCSKNTDSRCKARQLELNERTCRCDKPRR 190

RESULT 11  
US-09-699-769-31  
Sequence 31, Application US/09699769  
Patent No. 6569434  
GENERAL INFORMATION:  
APPLICANT: Bayne, Marvin L.  
APPLICANT: Thomas Jr., Kenneth A.  
TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR C SUBUNIT  
NUMBER OF SEQUENCES: 49  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Merck & Co., Inc.  
STREET: 126 E. Lincoln Avenue  
CITY: Rahway  
STATE: New Jersey  
COUNTRY: USA  
ZIP: 07065-0900  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Microsoft Word 6  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/699,769  
FILING DATE: 30-OCT-2000  
CLASSIFICATION: <Unknown>  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 08/586,039  
FILING DATE: 16-JAN-1996  
APPLICATION NUMBER: 08/124,259  
FILING DATE: 20-SEP-1993  
APPLICATION NUMBER: 07/676,436  
FILING DATE: 28-MAR-1991  
ATTORNEY/AGENT INFORMATION:  
NAME: Hand, J. Mark  
REGISTRATION NUMBER: 36,545  
REFERENCE/DOCKET NUMBER: 18361DB  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (732) 594-3905  
TELEFAX: (732) 594-4720  
INFORMATION FOR SEQ ID NO: 31:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 190 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
SEQUENCE DESCRIPTION: SEQ ID NO: 31:  
US-09-699-769-31

Query Match 86.9%; Score 206; DB 4; Length 190;  
Best Local Similarity 90.9%; Pred. No. 1.3e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCKSCSKNTDSRCKARQLE-NERTCRCDKPRR 41  
147 ERRKHLFVQDPQTCKSCSKNTDSRCKARQLELNERTCRCDKPRR 190

Db 147 ERRKHLFVQDPQTCKSCSKNTDSRCKARQLELNERTCRCDKPRR 190

RESULT 12  
5332671-3  
Patent No. 5332671



APPLICANT: FERRARA, NAPOLEONE, LEUNG, DAVID W. H.  
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL  
GROWTH FACTOR AND DNA ENCODING SAME  
NUMBER OF SEQUENCES: 15  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/389,722  
FILING DATE: 04-AUG-1989  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 369,424  
FILING DATE: 21-JUN-1989  
APPLICATION NUMBER: 351,117  
FILING DATE: 12-MAY-1989  
SEQ ID NO: 3  
LENGTH: 190  
5332671-3

Query Match 86.9%; Score 206; DB 6; Length 190;  
Best Local Similarity 90.9%; Pred. No. 1.3e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKLFV---OTCKSCKNTDSRCKAROLE-NERTCRCDKPRR 41  
DB 147 ERRKLFVODPOTCKSCKNTDSRCKAROLELNERTCRCDKPRR 190

RESULT 13  
US-08-567-200A-2  
Sequence 2, Application US/08567200A  
Patent No. 6020473  
GENERAL INFORMATION:  
APPLICANT: Keyt, Bruce A.  
APPLICANT: Nguyen, Francis H.  
APPLICANT: Ferrara, Napoleone  
TITLE OF INVENTION: Variants of Vascular Endothelial Cell  
TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their  
NUMBER OF SEQUENCES: 42  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Flehr, Hobbach, Test, Albritton & Herbert  
STREET: Four Embarcadero Center, Suite 3400  
CITY: San Francisco  
STATE: California  
COUNTRY: United States  
ZIP: 94111-4187  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/567,200A  
FILING DATE: 05-DEC-1995  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Dreger, Walter H.  
REGISTRATION NUMBER: 24,190  
REFERENCE/DOCKET NUMBER: A-62326-1/WHD  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 781-1989  
TELEFAX: (415) 398-3249  
TELEX: 910 277299  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 191 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULAR TYPE: protein  
US-08-567-200A-2

Query Match 86.9%; Score 206; DB 3; Length 191;  
Best Local Similarity 90.9%; Pred. No. 1.3e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKLFV---OTCKSCKNTDSRCKAROLE-NERTCRCDKPRR 41  
DB 148 ERRKLFVODPOTCKSCKNTDSRCKAROLELNERTCRCDKPRR 191

RESULT 14  
US-08-807-992B-2  
Sequence 2, Application US/08807992B  
Patent No. 6022541  
GENERAL INFORMATION:  
APPLICANT: Senger, Donald R  
APPLICANT: Dvorak, Harold F  
TITLE OF INVENTION: Immunological preparation for concurrent  
TITLE OF INVENTION: specific binding to spatially exposed regions of vascular  
TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood  
NUMBER OF SEQUENCES: 31  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: David Prashker, Esq.  
STREET: P.O. Box 5387  
CITY: Magnolia  
STATE: Massachusetts  
COUNTRY: USA  
ZIP: 01930  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage  
COMPUTER: IBM PS/1  
OPERATING SYSTEM: MS DOS  
SOFTWARE: Wordperfect version 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/807,992B  
FILING DATE: March 3, 1997  
CLASSIFICATION: 424  
ATTORNEY/AGENT INFORMATION:  
NAME: David Prashker, Esq.  
REGISTRATION NUMBER: 29,693  
REFERENCE/DOCKET NUMBER: BIS-033  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (978) 525-3794  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 191 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
US-08-807-992B-2

Query Match 86.9%; Score 206; DB 3; Length 191;  
Best Local Similarity 90.9%; Pred. No. 1.3e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKLFV---OTCKSCKNTDSRCKAROLE-NERTCRCDKPRR 41  
DB 148 ERRKLFVODPOTCKSCKNTDSRCKAROLELNERTCRCDKPRR 191

RESULT 15  
US-08-691-794-2  
Sequence 2, Application US/08691794  
Patent No. 6057428  
GENERAL INFORMATION:  
APPLICANT: Keyt, Bruce A.  
APPLICANT: Nguyen, Francis H.  
APPLICANT: Ferrara, Napoleone  
APPLICANT: Cunningham, Brian C.  
APPLICANT: Wells, James A.  
APPLICANT: Li, Bing  
TITLE OF INVENTION: Variants of Vascular Endothelial Cell  
TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their  
NUMBER OF SEQUENCES: 45  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Flehr, Hobbach, Test, Albritton & Herbert

Fri Jan 30 15:22:34 2004

us-09-266-543-6.rai

Page 6

STREET: Four Embarcadero Center, Suite 3400  
CITY: San Francisco  
STATE: California  
COUNTRY: United States  
ZIP: 94111-4187

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.30

CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/691,794  
FILING DATE: 02-AUG-1996  
CLASSIFICATION: 435

PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 60/002,827  
FILING DATE: 25-AUG-1995

PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/567,200  
FILING DATE: 05-DEC-1995

ATTORNEY/AGENT INFORMATION:  
NAME: Dreger, Walter H.  
REGISTRATION NUMBER: 24,190  
REFERENCE/DOCKET NUMBER: A-63758/MHD  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 761-1989  
TELEFAX: (415) 398-3249  
TELEX: 910 277299

INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 191 amino acids  
TYPE: amino acid  
TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-691-794-2

Query Match	86.9%;	Score 206;	DB 3;	Length 191;
Best Local Similarity	90.9%;	Pred. No. 1.3e-16;		
Matches 40;	Conservative 0;	Mismatches 0;	Indels 4;	Gaps 2;

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Oy      2 ERKHLFV---QTCKSCSKNTDSRCARQLE-NERTCRCDKPRR 41
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Db      148 ERKHLFVQDPQTCKSCSKNTDSRCARQLELNERTCRCDKPRR 191

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Job time : 18.4513 secs

GenCore version 5.1.6  
Copyright (c) 1993 - 2004 Compugen Ltd.

OM protein - protein search, using SW model

Run on: January 30, 2004, 11:44:49 ; Search time 40.5795 Seconds  
(without alignments)  
209.978 Million cell updates/sec

Title: US-09-266-543-6

Perfect score: 237  
Sequence: 1 CERRKHLFVQTCCKSCSKNTD.....RCKARQLENERTCRCCKPRR 41

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 789580 seqs, 207824079 residues

Total number of hits satisfying chosen parameters: 789580

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

Published Applications AA.\*  
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2: /cgn2\_6/ptodata/2/pubpaa/PCT\_NEW\_PUB.pep.\*  
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18: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	206	86.9	55	US-10-318-302-2	Sequence 2, Appl1
2	206	86.9	165	US-10-318-302-1	Sequence 1, Appl1
3	206	86.9	165	US-10-200-050-3	Sequence 3, Appl1
4	206	86.9	190	US-09-813-398-8	Sequence 8, Appl1
5	206	86.9	190	US-09-921-143-7	Sequence 7, Appl1
6	206	86.9	190	US-10-071-370A-2	Sequence 2, Appl1
7	206	86.9	190	US-10-177-465-4	Sequence 4, Appl1
8	206	86.9	190	US-10-155-492-4	Sequence 4, Appl1
9	206	86.9	191	US-09-349-954A-2	Sequence 2, Appl1
10	206	86.9	191	US-09-933-451A-2	Sequence 2, Appl1
11	206	86.9	191	US-09-907-007-2	Sequence 2, Appl1
12	206	86.9	191	US-09-795-006A-2	Sequence 2, Appl1
13	206	86.9	191	US-09-870-759-122	Sequence 12, App
14	206	86.9	191	US-09-751-708A-122	Sequence 12, Appl
15	206	86.9	191	US-10-392-931-6	Sequence 6, Appl1

16	206	86.9	191	US-10-131-985-17	Sequence 17, Appl
17	206	86.9	191	US-10-116-275-227	Sequence 227, App
18	206	86.9	191	US-10-418-529-6	Sequence 6, Appl1
19	206	86.9	191	US-10-083-817-3	Sequence 3, Appl1
20	206	86.9	191	US-10-200-050-2	Sequence 2, Appl1
21	206	86.9	191	US-10-201-386-56	Sequence 56, Appl
22	206	86.9	191	US-10-268-447-6	Sequence 6, Appl1
23	206	86.9	191	US-10-262-538-0	Sequence 20, Appl
24	206	86.9	191	US-10-277-184-2	Sequence 2, Appl1
25	206	86.9	191	US-10-207-655-51	Sequence 51, Appl
26	206	86.9	192	US-09-852-209A-8	Sequence 8, Appl1
27	206	86.9	192	US-10-131-600-8	Sequence 8, Appl1
28	206	86.9	198	US-10-293-157-26	Sequence 26, Appl
29	206	86.9	213	US-10-268-447-8	Sequence 8, Appl1
30	206	86.9	214	US-09-349-954A-2	Sequence 22, Appl
31	206	86.9	214	US-09-907-007-22	Sequence 22, Appl
32	206	86.9	214	US-09-963-156A-1	Sequence 1, Appl1
33	206	86.9	215	US-09-244-694-3	Sequence 3, Appl1
34	206	86.9	215	US-10-392-931-8	Sequence 8, Appl1
35	206	86.9	215	US-10-418-529-8	Sequence 8, Appl1
36	206	86.9	232	US-09-795-006A-147	Sequence 147, App
37	206	86.9	232	US-09-935-726-7	Sequence 7, Appl1
38	206	86.9	232	US-10-120-398-7	Sequence 7, Appl1
39	206	86.9	232	US-10-120-377-7	Sequence 7, Appl1
40	206	86.9	232	US-10-120-414-7	Sequence 7, Appl1
41	206	86.9	232	US-10-127-551-5	Sequence 5, Appl1
42	206	86.9	232	US-10-060-523-9	Sequence 9, Appl1
43	206	86.9	232	US-10-084-488-7	Sequence 7, Appl1
44	206	86.9	232	US-10-268-447-10	Sequence 10, Appl
45	199	84.0	191	US-10-207-655-53	Sequence 53, Appl

## ALIGNMENTS

RESULT 1  
US-10-318-302-2  
; Publication 2, Application US/10318302  
; Sequence No. US20030171556A1  
; GENERAL INFORMATION:  
; APPLICANT: POSTECH FOUNDATION  
; APPLICANT: Chae, Chi-Bom  
; APPLICANT: Chae, Yong Song  
; APPLICANT: Yang, Seung-Pil  
; APPLICANT: Kwon, Byung Oh  
; APPLICANT: Bae, Dong-Goo  
; APPLICANT: Hwang, Seewook  
; TITLE OF INVENTION: BETA-AMYLOID BINDING FACTORS AND INHIBITORS THEREOF  
; FILE REFERENCE: 10011-00001  
; CURRENT APPLICATION NUMBER: US/10/318,302  
; CURRENT FILING DATE: 2002-12-12  
; NUMBER OF SEQ ID NOS: 5  
; SOFTWARE: PatentIn version 3.1  
; SEQ ID NO 2  
; LENGTH: 55  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-10-318-302-2

Query Match 86.9% Score 206; DB 12; Length 55;  
Best Local Similarity 90.9% Pred. No. 9.4e-17;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKHLFV---QTCCKSKNTDSRCKARQLNERTCRCKPRR 41  
DB 12 ERRKHLFVQPTCKSCSKNTDSRCKARQLENERTCRCCKPRR 55

RESULT 2  
US-10-318-302-1  
; Sequence 1, Application US/10318302  
; Publication No. US20030171556A1

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; GENERAL INFORMATION:
; APPLICANT: POSCO
; APPLICANT: POSTECH FOUNDATION
; APPLICANT: Chae, Chi-Bom
; APPLICANT: Gho, Yong Song
; APPLICANT: Yang, Seung-Pil
; APPLICANT: Kwon, Byung Oh
; APPLICANT: Bae, Dong-Goo
; APPLICANT: Hwang, Sewook
; TITLE OF INVENTION: BETA-AMYLOID BINDING FACTORS AND INHIBITORS THEREOF
; FILE REFERENCE: 10011-00001
; CURRENT APPLICATION NUMBER: US/10/318,302
; CURRENT FILING DATE: 2002-12-12
; NUMBER OF SEQ ID NOS: 5
; SOFTWARE: PatentIn version 3.1.1
; SEQ ID NO 1
; LENGTH: 165
; TYPE: PRT
; ORGANISM: Homo sapiens
; US-10-318-302-1

Query Match      86.9%; Score 206; DB 12; Length 165;
Best Local Similarity 90.9%; Pred. No. 2.6e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy      2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41
Db      122 ERRKHLFVQDPQTCCKSCSKNTDSRCKAROLELNERTCRCDKPRR 165

RESULT 3
US-10-200-050-3
; Sequence 3, Application US/10200050
; Publication No. US20030032145A1
; GENERAL INFORMATION:
; APPLICANT: Zioncheck, Thomas F.
; Deguzman, Getalyn G.
; Keck, Rodney G.
; TITLE OF INVENTION: VARIANTS OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR HAVING ALTERED PHARMACOLOGICAL PROPERTIES,
; AND RELATED ASPECTS THEREOF
; NUMBER OF SEQUENCES: 3
; CORRESPONDENCE ADDRESS:
; ADDRESSER: Flehr, Hobbach, Test, Albritton & Herbert
; STREET: Four Embarcadero Center, Suite 3400
; CITY: San Francisco
; STATE: California
; COUNTRY: United States
; ZIP: 94111-4187
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/10/200,050
; FILING DATE: 19-Jul-2002
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/08/802,052
; FILING DATE: 14-FEB-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Vance, Dolly A.
; REGISTRATION NUMBER: 39,054
; REFERENCE/DOCKET NUMBER: A-64069/WHD/DAY
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (415) 781-1989
; TELEFAX: (415) 398-3249
; TELEX: 910 277299
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 165 amino acids
; TYPE: amino acid

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; STRANDEDNESS: unknown
; TOPOLOGY: unknown
; MOLECULE TYPE: protein
; SEQUENCE DESCRIPTION: SEQ ID NO: 3:
US-10-200-050-3

Query Match      86.9%; Score 206; DB 15; Length 165;
Best Local Similarity 90.9%; Pred. No. 2.6e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy      2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41
Db      122 ERRKHLFVQDPQTCCKSCSKNTDSRCKAROLELNERTCRCDKPRR 165

RESULT 4
US-09-813-398-8
; Sequence 8, Application US/09813398
; Patent No. US20020169292A1
; GENERAL INFORMATION:
; APPLICANT: Martinez, Bruce D. Weintraub
; APPLICANT: University of Maryland
; TITLE OF INVENTION: CYSTINE KNOT GROWTH FACTOR MUTANTS
; FILE REFERENCE: UOFMD.003C1
; CURRENT APPLICATION NUMBER: US/09/813,398
; CURRENT FILING DATE: 2001-03-20
; PRIOR APPLICATION NUMBER: PCT/US99/05908
; PRIOR FILING DATE: 1999-03-19
; PRIOR APPLICATION NUMBER: PCT/US98/19772
; PRIOR FILING DATE: 1998-09-22
; NUMBER OF SEQ ID NOS: 41
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 8
; LENGTH: 190
; TYPE: PRT
; ORGANISM: HOMO SAPIEN
; US-09-813-398-8

Query Match      86.9%; Score 206; DB 10; Length 190;
Best Local Similarity 90.9%; Pred. No. 3e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy      2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41
Db      147 ERRKHLFVQDPQTCCKSCSKNTDSRCKAROLELNERTCRCDKPRR 190

RESULT 5
US-09-921-143-7
; Sequence 7, Application US/09921143
; Publication No. US20030215921A1
; GENERAL INFORMATION:
; APPLICANT: Coleman, Timothy
; TITLE OF INVENTION: Vascular Endothelial Growth Factor-2
; FILE REFERENCE: PFI12P6
; CURRENT APPLICATION NUMBER: US/09/921,143
; CURRENT FILING DATE: 2001-08-03
; PRIOR APPLICATION NUMBER: 60/223,276
; PRIOR FILING DATE: 2000-08-04
; NUMBER OF SEQ ID NOS: 36
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 7
; LENGTH: 190
; TYPE: PRT
; ORGANISM: homo sapiens
; US-09-921-143-7

Query Match      86.9%; Score 206; DB 12; Length 190;
Best Local Similarity 90.9%; Pred. No. 3e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy      2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41

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Db 147 ERRKHLFVODPQTCCKSCNTDSRCKARQLEINERTCRCDKRR 190  
US-10-071-370A-2  
RESULT 6  
; Sequence 2, Application US/10071370A  
; Publication No. US20030045471A1  
; GENERAL INFORMATION:  
; APPLICANT: Bayne, Marvin L.  
; APPLICANT: Conn, Gregory L.  
; APPLICANT: Thomas, Jr., Kenneth A.  
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR  
; TITLE OF INVENTION: II  
; FILE REFERENCE: 18199CB  
; CURRENT APPLICATION NUMBER: US/10/071,370A  
; PRIOR FILING DATE: 2002-02-08  
; PRIOR APPLICATION NUMBER: 09/326,879  
; PRIOR FILING DATE: 1999-06-07  
; PRIOR APPLICATION NUMBER: 09/038,199  
; PRIOR FILING DATE: 1998-03-10  
; PRIOR APPLICATION NUMBER: 08/299,185  
; PRIOR FILING DATE: 1994-08-31  
; PRIOR APPLICATION NUMBER: 08/000,834  
; PRIOR FILING DATE: 1993-01-05  
; PRIOR APPLICATION NUMBER: 07/586,638  
; PRIOR FILING DATE: 1990-09-21  
; NUMBER OF SEQ ID NOS: 29  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 2  
; LENGTH: 190  
; TYPE: PRT  
; ORGANISM: rat  
US-10-071-370A-2  
Query Match 86.9%; Score 206; DB 15; Length 190;  
Best Local Similarity 90.9%; Pred. No. 3e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;  
QY 2 ERRKHLFV---QTCCKSCNTDSRCKARQLE-NERTCRCDKRR 41  
Db 147 ERRKHLFVODPQTCCKSCNTDSRCKARQLEINERTCRCDKRR 190  
US-10-177-485-4  
RESULT 7  
; Sequence 4, Application US/10177485  
; Publication No. US20030108989A1  
; GENERAL INFORMATION:  
; APPLICANT: Ferrara, Napoleone  
; APPLICANT: Leung, David Wai-Hung  
; TITLE OF INVENTION: Production of Vascular Endothelial Cell Growth Factor  
; TITLE OF INVENTION: and DNA Encoding Same  
; FILE REFERENCE: P0586PIC9  
; CURRENT APPLICATION NUMBER: US/10/177,485  
; CURRENT FILING DATE: 2002-06-20  
; PRIOR APPLICATION NUMBER: US 08/979,105  
; PRIOR FILING DATE: 1997-11-26  
; PRIOR APPLICATION NUMBER: US 08/749,709  
; PRIOR FILING DATE: 1996-11-15  
; PRIOR APPLICATION NUMBER: US 08/460,370  
; PRIOR FILING DATE: 1995-06-02  
; PRIOR APPLICATION NUMBER: US 08/410,378  
; PRIOR FILING DATE: 1995-03-27  
; PRIOR APPLICATION NUMBER: US 08/062,489  
; PRIOR FILING DATE: 1993-05-13  
; PRIOR APPLICATION NUMBER: US 07/772,399  
; PRIOR FILING DATE: 1991-10-07  
; PRIOR APPLICATION NUMBER: US 07/369,424  
; PRIOR FILING DATE: 1989-06-21  
; PRIOR APPLICATION NUMBER: US 07/351,117  
; PRIOR FILING DATE: 1989-05-12  
; NUMBER OF SEQ ID NOS: 9

; SEQ ID NO 4  
; LENGTH: 190  
; TYPE: PRT  
; ORGANISM: Bovine  
US-10-177-485-4  
Query Match 86.9%; Score 206; DB 15; Length 190;  
Best Local Similarity 90.9%; Pred. No. 3e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;  
QY 2 ERRKHLFV---QTCCKSCNTDSRCKARQLE-NERTCRCDKRR 41  
Db 147 ERRKHLFVODPQTCCKSCNTDSRCKARQLEINERTCRCDKRR 190  
US-10-155-492-4  
RESULT 8  
; Sequence 4, Application US/10155492  
; Publication No. US20030114374A1  
; GENERAL INFORMATION:  
; APPLICANT: Ferrara, Napoleone  
; APPLICANT: Leung, David Wai-Hung  
; TITLE OF INVENTION: Production of Vascular Endothelial Cell Growth Factor  
; TITLE OF INVENTION: and DNA Encoding Same  
; FILE REFERENCE: P0586PIC8  
; CURRENT APPLICATION NUMBER: US/10/155,492  
; CURRENT FILING DATE: 2002-05-24  
; PRIOR APPLICATION NUMBER: US 08/901,544  
; PRIOR FILING DATE: 1997-07-28  
; PRIOR APPLICATION NUMBER: US 08/694,809  
; PRIOR FILING DATE: 1996-08-09  
; PRIOR APPLICATION NUMBER: US 08/410,378  
; PRIOR FILING DATE: 1995-03-27  
; PRIOR APPLICATION NUMBER: US 08/062,489  
; PRIOR FILING DATE: 1993-05-13  
; PRIOR APPLICATION NUMBER: US 07/772,399  
; PRIOR FILING DATE: 1991-10-07  
; PRIOR APPLICATION NUMBER: US 07/369,424  
; PRIOR FILING DATE: 1989-06-21  
; PRIOR APPLICATION NUMBER: US 07/351,117  
; PRIOR FILING DATE: 1989-05-12  
; NUMBER OF SEQ ID NOS: 9  
; SEQ ID NO 4  
; LENGTH: 190  
; TYPE: PRT  
; ORGANISM: Bovine  
US-10-155-492-4  
Query Match 86.9%; Score 206; DB 15; Length 190;  
Best Local Similarity 90.9%; Pred. No. 3e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;  
QY 2 ERRKHLFV---QTCCKSCNTDSRCKARQLE-NERTCRCDKRR 41  
Db 147 ERRKHLFVODPQTCCKSCNTDSRCKARQLEINERTCRCDKRR 190  
US-09-349-954A-2  
RESULT 9  
; Sequence 2, Application US/09349954A  
; Patent No. US20020019027A1  
; GENERAL INFORMATION:  
; APPLICANT: Hayward, Nicholas K.  
; APPLICANT: Weber, Gunther  
; APPLICANT: Grimmond, Sean  
; APPLICANT: No. US20020019027A1denekjold, Magnus  
; APPLICANT: Larsson, Catharina  
; TITLE OF INVENTION: A NOVEL GROWTH FACTOR AND A GENETIC SEQUENCE ENCODING  
; TITLE OF INVENTION: SAME  
; FILE REFERENCE: Dav. Col. Cave  
; CURRENT APPLICATION NUMBER: US/09/349,954A  
; CURRENT FILING DATE: 1999-07-08  
; PRIOR APPLICATION NUMBER: 08/765,588

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; PRIOR FILING DATE: 1996-02-22
; NUMBER OF SEQ ID NOS: 22
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 2
; LENGTH: 191
; TYPE: PRT
; ORGANISM: Nucleotide Sequence of VEGF165
US-09-349-954A-2

Query Match
Best Local Similarity 86.9%; Score 206; DB 9; Length 191;
Best Local Similarity 90.9%; Pred. No. 3e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Oy 2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41
Db 148 ERRKHLFVQDPQTCCKSCSKNTDSRCKAROLELNERTCRCDKPRR 191

RESULT 10
US-09-932-451A-2
; Sequence 2, Application US/09932451A
; Patent No. US20020113241A1
; GENERAL INFORMATION:
; APPLICANT: OZAMA, Keiya
; APPLICANT: SHIMPO, Masahisa
; APPLICANT: IKEDA, Uichi
; APPLICANT: MAEDA, Yoshihazu
; APPLICANT: SHIMADA, Kazuyuki
; TITLE OF INVENTION: ADENO-ASSOCIATED VIRUS-MEDIATED DELIVERY OF ANGIOGENIC
; FILE REFERENCE: 0800-0026
; CURRENT APPLICATION NUMBER: US/09/932,451A
; PRIOR FILING DATE: 2001-08-17
; PRIOR APPLICATION NUMBER: 60/226,056
; NUMBER OF SEQ ID NOS: 2
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 2
; LENGTH: 191
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: VEGF-165
US-09-932-451A-2

Query Match
Best Local Similarity 86.9%; Score 206; DB 10; Length 191;
Best Local Similarity 90.9%; Pred. No. 3e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Oy 2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41
Db 148 ERRKHLFVQDPQTCCKSCSKNTDSRCKAROLELNERTCRCDKPRR 191

RESULT 11
US-09-907-007-2
; Sequence 2, Application US/09907007
; Patent No. US20020142395A1
; GENERAL INFORMATION:
; APPLICANT: Hayward, Nicholas K.
; APPLICANT: Weber, Gunther
; APPLICANT: Grimmold, Sean
; APPLICANT: No. US20020142395A1denskjold, Magnus
; APPLICANT: Larsson, Catharina
; TITLE OF INVENTION: A NOVEL GROWTH FACTOR AND A GENETIC SEQUENCE ENCODING
; FILE REFERENCE: DAVIES
; CURRENT APPLICATION NUMBER: US/09/907,007
; PRIOR FILING DATE: 2001-07-17
; PRIOR APPLICATION NUMBER: 08/765,588
; PRIOR FILING DATE: 1996-02-22
; NUMBER OF SEQ ID NOS: 22
; SOFTWARE: PatentIn Ver. 2.1
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; SEQ ID NO 2
; LENGTH: 191
; TYPE: PRT
; ORGANISM: Nucleotide Sequence of VEGF165
US-09-907-007-2

Query Match
Best Local Similarity 86.9%; Score 206; DB 10; Length 191;
Best Local Similarity 90.9%; Pred. No. 3e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Oy 2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41
Db 148 ERRKHLFVQDPQTCCKSCSKNTDSRCKAROLELNERTCRCDKPRR 191

RESULT 12
US-09-795-006A-2
; Sequence 2, Application US/09795006A
; Patent No. US20020151680A1
; GENERAL INFORMATION:
; APPLICANT: Alitalo et al
; TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR
; FILE REFERENCE: 28967/35977B
; CURRENT APPLICATION NUMBER: US/09/795,006A
; PRIOR FILING DATE: 2001-02-26
; PRIOR APPLICATION NUMBER: US 60/205,331
; PRIOR FILING DATE: 2000-05-18
; PRIOR APPLICATION NUMBER: US 60/185,205
; NUMBER OF SEQ ID NOS: 175
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 2
; LENGTH: 191
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-795-006A-2

Query Match
Best Local Similarity 86.9%; Score 206; DB 10; Length 191;
Best Local Similarity 90.9%; Pred. No. 3e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Oy 2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41
Db 148 ERRKHLFVQDPQTCCKSCSKNTDSRCKAROLELNERTCRCDKPRR 191

RESULT 13
US-09-870-759-122
; Sequence 122, Application US/09870759
; Patent No. US20020177551A1
; GENERAL INFORMATION:
; APPLICANT: TERMAN, David S
; TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR TREATMENT OF NEOPLASTIC DISEASE
; FILE REFERENCE: 870759
; CURRENT APPLICATION NUMBER: US/09/870,759
; PRIOR FILING DATE: 2002-01-14
; PRIOR APPLICATION NUMBER: US 60/208,128
; NUMBER OF SEQ ID NOS: 166
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 122
; LENGTH: 191
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-870-759-122

Query Match
Best Local Similarity 86.9%; Score 206; DB 10; Length 191;
Best Local Similarity 90.9%; Pred. No. 3e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Oy 2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41
Db 148 ERRKHLFVQDPQTCCKSCSKNTDSRCKAROLELNERTCRCDKPRR 191
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Db 148 ERRKHLFVODPQTCCKSCNNTDSRCKARQLEINERTCRCDKPRR 191

## RESULT 14

US-09-751-708A-122  
 ; Sequence 122, Application US/09751708A  
 ; Publication No. US20030157113A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: TERMAN, David S  
 ; TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR TREATMENT OF NEOPLASTIC DISEASE  
 ; FILE REFERENCE: 751708  
 ; CURRENT APPLICATION NUMBER: US/09/751,708A  
 ; CURRENT FILING DATE: 2002-10-15  
 ; PRIOR APPLICATION NUMBER: US 60/173,371  
 ; PRIOR FILING DATE: 1999-12-28  
 ; NUMBER OF SEQ ID NOS: 166  
 ; SOFTWARE: PatentIn version 3.1  
 ; SEQ ID NO 122  
 ; LENGTH: 191  
 ; TYPE: PRT  
 ; ORGANISM: Homo sapiens  
 US-09-751-708A-122

Query Match 86.9%; Score 206; DB 12; Length 191;  
 Best Local Similarity 90.9%; Pred. No. 3e-16;  
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Qy 2 ERRKHLFV---QTCCKSCNNTDSRCKARQLE-NERTCRCDKPRR 41  
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 Db 148 ERRKHLFVODPQTCCKSCNNTDSRCKARQLEINERTCRCDKPRR 191

## RESULT 15

US-10-392-931-6  
 ; Sequence 6, Application US/10392931  
 ; Publication No. US20030194643A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Schreiner, George F.  
 ; APPLICANT: Johnson, Richard J.  
 ; APPLICANT: Scios, Inc.  
 ; APPLICANT: University of Washington  
 ; TITLE OF INVENTION: TREATMENT OF MICROVASCULAR ANGIOPATHIES  
 ; FILE REFERENCE: SCIOS.003A  
 ; CURRENT APPLICATION NUMBER: US/10/392,931  
 ; CURRENT FILING DATE: 1999-09-09  
 ; PRIOR APPLICATION NUMBER: 60/099694  
 ; PRIOR FILING DATE: 1998-09-09  
 ; PRIOR APPLICATION NUMBER: 60/126406  
 ; PRIOR FILING DATE: 1999-03-26  
 ; PRIOR APPLICATION NUMBER: 60/126615  
 ; PRIOR FILING DATE: 1999-03-27  
 ; NUMBER OF SEQ ID NOS: 11  
 ; SOFTWARE: FastSeq for Windows Version 4.0  
 ; SEQ ID NO 6  
 ; LENGTH: 191  
 ; TYPE: PRT  
 ; ORGANISM: Homo sapien  
 US-10-392-931-6

Query Match 86.9%; Score 206; DB 12; Length 191;  
 Best Local Similarity 90.9%; Pred. No. 3e-16;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCCKSCNNTDSRCKARQLE-NERTCRCDKPRR 41  
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 Db 148 ERRKHLFVODPQTCCKSCNNTDSRCKARQLEINERTCRCDKPRR 191

Search completed: January 30, 2004, 12:15:02  
 Job time : 41.7045 secs





GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:34:23 / Search time 17.6615 Seconds  
(without alignments)  
223.249 Million cell updates/sec

Title: US-09-266-543-6.

Sequence: 1 CERRKHLFVQTCCKSCNTD.....RCKARQLENERTCRCDKRR 41

Scoring table: BIOSUM62  
Gapop 10.0, Gapext 0.5

Searched: 283308 seqs, 96168682 residues

Total number of hits satisfying chosen parameters: 283308

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%

Listing first 45 summaries

Database :  
1: pir1:\*  
2: pir2:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	206	86.9	190	2	SS2130
2	206	86.9	190	2	B40080
3	206	86.9	190	2	B44881
4	206	86.9	190	2	A35987
5	206	86.9	214	2	A44881
6	206	86.9	232	2	A41551
7	85	35.9	188	2	UC4680
8	74	31.2	419	2	S69207
9	71	30.0	1700	2	S08167
10	70	29.5	160	2	J00542
11	61	25.7	69	2	A55011
12	61	25.7	120	2	A33787
13	61	25.7	146	2	S57956
14	60.5	25.3	398	2	A5281
15	60	25.3	5376	2	T42215
16	59.5	25.1	593	2	S45281
17	59	24.9	2703	1	A24420
18	58.5	24.7	1187	2	T09074
19	58	24.5	1568	2	T19355
20	58	24.5	4307	2	T20721
21	56	23.6	363	2	T39527
22	56	23.6	372	1	A32375
23	56	23.6	451	2	A86470
24	55.5	23.4	603	2	S28941
25	55	23.2	63	2	A34905
26	55	23.2	153	2	A33090
27	55	23.2	425	2	T18592
28	54.5	23.0	57	1	SMKD25

30	54.5	23.0	75	2	B45206	metallothionein 2
31	54.5	23.0	128	2	I51295	vascular endotheli
32	54.5	23.0	651	2	T19477	hypothetical prote
33	54	22.8	147	2	A48194	thyrotropin beta c
34	54	22.8	432	2	T37509	hypothetical prote
35	53.5	22.6	1106	2	T13938	gene shuttle craft
36	53.5	22.6	1106	2	T44598	hypothetical prote
37	53.5	22.6	1280	2	A39117	170K lectin precu
38	53	22.4	170	2	G64016	hypothetical prote
39	53	22.4	225	2	S25097	platelet-derived g
40	53	22.4	241	1	PFMSGB	platelet-derived g
41	53	22.4	372	2	S23936	L-selectin precurs
42	53	22.4	376	2	JC4892	hypothetical prote
43	53	22.4	686	2	JC7569	Delta-4 protein -
44	52.5	22.2	683	1	RNZMB1	DNA-directed RNA p
45	52.5	22.2	1051	2	JC4091	glycoprotein A - P

## ALIGNMENTS

RESULT 1  
S52130  
Vascular endothelial growth factor - pig  
C:Species: Sus scrofa domestica (domestic pig)  
C>Date: 14-Jul-1995 #sequence\_revision 21-Jul-1995 #text\_change 05-Nov-1999  
C:Accession: S52130  
R/Sharma, H.S.; Tang, Z.H.; Gho, B.C.G.; Verdouw, P.D.  
Biochim. Biophys. Acta 1260, 235-238, 1995  
A:Title: Nucleotide sequence and expression of the porcine vascular endothelial growth f  
A:Reference number: S52130; MUID:95143284; PMID:7841203  
A:Accession: S52130  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-190 <SHA>  
A:Cross-references: GB:X81380; NID:G587559; PIDN:CAA57143.1; PID:G587560

Query Match 86.9% Score 206; DB 2; Length 190;  
Best Local Similarity 90.9%; Pred. No. 7.9e-16;  
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCCKSCNTDSRCKAROLE-NERTCRCDKRR 41  
Db 147 ERRKHLFVQDPQTCCKSCNTDSRCKAROLENERTCRCDKRR 190

RESULT 2  
B40080  
Vascular endothelial growth factor precursor (version 2) - bovine  
C:Species: Bos primigenius taurus (cattle)  
C>Date: 30-Jun-1992 #sequence\_revision 30-Jun-1992 #text\_change 05-Nov-1999  
C:Accession: B40080; B33787; A33255  
R/Lueng, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.  
Science 246, 1306-1309, 1989  
A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.  
A:Reference number: A40080; MUID:90069608; PMID:2479986  
A:Accession: B40080  
A:Molecule type: mRNA  
A:Residues: 1-190 <LEU>  
A:Cross-references: GB:M32976; NID:G163006; PIDN:AAA30502.1; PID:G163007  
R/Tschacher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Crisp  
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989  
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived growth  
A:Reference number: A33787; MUID:90121225; PMID:2610687  
A:Accession: B33787  
A:Molecule type: mRNA  
A:Residues: 27-190 <TIS>  
A:Cross-references: GB:M1836; NID:G163808; PIDN:AAA30804.1; PID:G163809  
R/Ferrara, N.; Henzel, W.J.  
Biochem. Biophys. Res. Commun. 161, 851-858, 1989  
A:Title: Pituitary follicular cells secrete a novel heparin-binding growth factor specif  
A:Reference number: A33255; MUID:89286596; PMID:2735925  
A:Accession: A33255

A/Molecule type: protein  
 A/Residues: 27-31 <PBR>  
 C/Keywords: alternative splicing; glycoprotein  
 F/1-26/Domain: signal sequence #status predicted <SIG>  
 F/27-190/Product: vascular endothelial growth factor #status predicted <MAT>  
 F/100/Binding site: carbohydrate (asn) (covalent) #status predicted

Query Match 86.9%; Score 206; DB 2; Length 190;  
 Best Local Similarity 90.9%; Pred. No. 7.9e-16;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

2 ERRKHLFV---QTCKSCSKNTDSRCKARQLE-NERTCRCDKPRR 41  
 Db 147 ERRKHLFVQDPQTCKSCSKNTDSRCKARQLELNERTCRCDKPRR 190

RESULT 3  
 B44881  
 Vascular endothelial growth factor-1 precursor - mouse  
 C/Species: Mus musculus (house mouse)  
 C/Date: 03-Feb-1994 #sequence revision 03-Feb-1994 #text\_change 05-Nov-1999  
 C/Accession: B44881; A43551; A61029  
 R/Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.  
 Development 114, 521-532, 1992  
 A/Title: Expression of vascular endothelial growth factor during embryonic angiogenesis  
 A/Reference number: A44881; MUID:92274860; PMID:1592003  
 A/Accession: B44881  
 A/Molecule type: mRNA  
 A/Residues: 1-190 <BRE>  
 A/Cross-references: GB:538083; NID:G249856; PIDN:AA22253.1; PID:G249859  
 A/Note: sequence extracted from NCBI backbone (NCBIN:107622, NCBIIP:107623)  
 A/Experimental source: embryo  
 R/Claflaffey, K.P.; Wilkison, W.O.; Siegelman, B.M.  
 J. Biol. Chem. 267, 16317-16322, 1992  
 A/Title: Vascular endothelial growth factor. Regulation by cell differentiation and acti  
 A/Reference number: A43351; MUID:92355593; PMID:1644816  
 A/Accession: A43351  
 A/Molecule type: mRNA  
 A/Residues: 1-116, 'ER', 119-190 <CLA>  
 A/Cross-references: GB:M95200; NID:G202350; PIDN:AAA40547.1; PID:G202351  
 A/Note: sequence extracted from NCBI backbone (NCBIN:110665, NCBIIP:110675)  
 R/Rosenthal, R.A.; Megyesi, J.F.; Henzel, W.J.; Ferrara, N.; Folkman, J.  
 Growth Factors 4, 53-59, 1990  
 A/Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelial g  
 A/Reference number: A61029; MUID:91197543; PMID:2085441  
 A/Accession: A61029  
 A/Molecule type: protein  
 A/Residues: 27-38 <ROS>  
 C/Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein; mlt

Query Match 86.9%; Score 206; DB 2; Length 190;  
 Best Local Similarity 90.9%; Pred. No. 7.9e-16;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

2 ERRKHLFV---QTCKSCSKNTDSRCKARQLE-NERTCRCDKPRR 41  
 Db 147 ERRKHLFVQDPQTCKSCSKNTDSRCKARQLELNERTCRCDKPRR 190

RESULT 4  
 A35987  
 Glioma-derived vascular endothelial cell growth factor - rat  
 C/Species: Rattus norvegicus (Norway rat)  
 C/Date: 16-Nov-1990 #sequence revision 16-Nov-1990 #text\_change 05-Nov-1999  
 C/Accession: A35987  
 R/Com, G.; Bayne, M.L.; Soderman, D.D.; Kwok, P.W.; Sullivan, K.A.; Palisi, T.M.; Hope,  
 Proc. Natl. Acad. Sci. U.S.A. 87, 2628-2632, 1990  
 A/Title: Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is ho  
 A/Reference number: A35987; MUID:90207249; PMID:2320579  
 A/Accession: A35987  
 A/Status: Preliminary  
 A/Molecule type: mRNA  
 A/Residues: 1-190 <COM>

A/Cross-references: GB:M32167; NID:G204287; PIDN:AAA41211.1; PID:G204288

Query Match 86.9%; Score 206; DB 2; Length 190;  
 Best Local Similarity 90.9%; Pred. No. 7.9e-16;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

2 ERRKHLFV---QTCKSCSKNTDSRCKARQLE-NERTCRCDKPRR 41  
 Db 147 ERRKHLFVQDPQTCKSCSKNTDSRCKARQLELNERTCRCDKPRR 190

RESULT 5  
 A44881  
 Vascular endothelial growth factor-3 precursor - mouse  
 N/Contains: vascular endothelial growth factor-2; vascular permeability factor  
 C/Species: Mus musculus (house mouse)  
 C/Date: 03-Feb-1994 #sequence revision 03-Feb-1994 #text\_change 08-Oct-1999  
 C/Accession: A44881; C44881; A60932; S52136  
 R/Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.  
 Development 114, 521-532, 1992  
 A/Title: Expression of vascular endothelial growth factor during embryonic angiogenesis  
 A/Reference number: A44881; MUID:92274860; PMID:1592003  
 A/Accession: A44881  
 A/Molecule type: mRNA  
 A/Residues: 1-214 <BRE>  
 A/Cross-references: GB:537052; NID:G249856; PIDN:AA22252.1; PID:G249857  
 A/Note: sequence extracted from NCBI backbone (NCBIN:104677, NCBIIP:104678)  
 A/Experimental source: embryo  
 A/Accession: C44881  
 A/Molecule type: protein  
 A/Residues: 1-140, 209-214 <BR2>  
 A/Cross-references: GB:538100; NID:G249860; PIDN:AA22254.1; PID:G249861  
 A/Note: sequence extracted from NCBI backbone (NCBIN:107624, NCBIIP:107625)  
 R/Clauss, M.; Gerlach, M.; Gerlach, H.; Brett, J.; Wang, F.; Familletti, P.C.; Pan, Y.C.;  
 J. Exp. Med. 172, 1535-1545, 1990  
 A/Title: Vascular permeability factor: a tumor-derived polypeptide that induces endothe  
 A/Reference number: A60932; MUID:91079755; PMID:2258694  
 A/Accession: A60932  
 A/Molecule type: protein  
 A/Residues: 27-33 <CLA>  
 R/Sugihara, T.; Kaul, S.C.; Mitsu, Y.; Wadhwa, R.  
 Biochim. Biophys. Acta 1224, 365-370, 1994  
 A/Title: Enhanced expression of multiple forms of VEGF is associated with spontaneous  
 A/Reference number: S52136; MUID:95101726; PMID:7803491  
 A/Accession: S52136  
 A/Status: Preliminary  
 A/Molecule type: protein  
 A/Residues: 27-46 <SUG>  
 C/Comment: Homodimers could be demonstrated for recombinant VEGF-2 but not VEGF-3.  
 C/Keywords: alternative splicing; angiogenesis; disulfide bond; glycoprotein; homodimer;  
 F/1-26/Domain: signal sequence #status predicted <SIG>  
 F/27-214/Product: vascular endothelial growth factor-3 #status experimental <MAT>

Query Match 86.9%; Score 206; DB 2; Length 214;  
 Best Local Similarity 90.9%; Pred. No. 8.5e-16;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

2 ERRKHLFV---QTCKSCSKNTDSRCKARQLE-NERTCRCDKPRR 41  
 Db 171 ERRKHLFVQDPQTCKSCSKNTDSRCKARQLELNERTCRCDKPRR 214

RESULT 6  
 A41551  
 Vascular endothelial growth factor 206 precursor - human  
 N/Alternate names: vascular permeability factor  
 N/Contains: vascular endothelial growth factor 121 (VEGF 121); VEGF 165; VEGF 189; VEGF  
 C/Species: Homo sapiens (man)  
 C/Date: 28-Aug-1992 #sequence revision 28-Aug-1992 #text\_change 05-Nov-1999  
 C/Accession: A41551; C41551; B41551; A40544; B40454; C40454; A40079; A40080; J01463; J01464;  
 R/Houck, K.A.; Ferrara, N.; Winer, J.; Cachianes, G.; Vlodavsky, B.; Leung, D.W.  
 Mol. Endocrinol. 5, 1806-1814, 1991  
 A/Title: The vascular endothelial growth factor family: identification of a fourth mole

A:Reference number: A41551; MUID:92168017; PMID:1791831  
 A:Accession: A41551  
 A:Molecule type: mRNA  
 A:Residues: 1-232 <HOU1>  
 A:Cross-references: GB:S65192; NID:9246155; PID:9246156  
 A:Accession: C41551  
 A:Status: nucleic acid sequence not shown  
 A:Molecule type: mRNA  
 A:Residues: 1-140, 'N', 183-232 <HOU2>  
 A:Accession: B41551  
 A:Status: nucleic acid sequence not shown; not compared with conceptual translation  
 A:Molecule type: mRNA  
 A:Residues: 1-141, 227-232 <HOU>  
 R:Tscher, E.; Mitchell, R.; Hartman, T.; Silva, M.; Goepoldarowicz, D.; Fiddes, J.C.; At  
 J. Biol. Chem. 266, 11947-11954, 1991  
 A:Title: The human gene for vascular endothelial growth factor. Multiple protein forms  
 A:Reference number: A40454; MUID:91268072; PMID:1711045  
 A:Accession: A40454  
 A:Molecule type: DNA  
 A:Residues: 1-165, 183-232 <TI1>  
 A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63976; GB  
 A:Accession: B40454  
 A:Molecule type: DNA  
 A:Residues: 1-140, 'N', 183-232 <TI2>  
 A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63977; GB  
 A:Accession: C40454  
 A:Molecule type: DNA  
 A:Residues: 1-141, 227-232 <TI3>  
 A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63978  
 R:Kock, P.U.; Hauser, S.D.; Krivy, G.; Sanzo, K.; Warren, T.; Feder, J.; Connolly, D.T.  
 Science 246, 1309-1312, 1989  
 A:Title: Vascular permeability factor, an endothelial cell mitogen related to PDGF.  
 A:Reference number: A40079; MUID:90069609; PMID:2479987  
 A:Accession: A40079  
 A:Status: not compared with conceptual translation  
 A:Molecule type: mRNA  
 A:Residues: 1-165, 183-232 <KEC>  
 A:Cross-references: GB:M27281; NID:9340300; PIDN:AAA36807.1; PID:9340301  
 R:Leung, D.W.; Cachianes, G.; Kiang, W.J.; Goeddel, D.V.; Ferrara, N.  
 Science 246, 1306-1309, 1989  
 A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.  
 A:Reference number: A40080; MUID:90069608; PMID:2479986  
 A:Accession: A40080  
 A:Status: not compared with conceptual translation  
 A:Molecule type: mRNA  
 A:Residues: 1-140, 'N', 183-232 <LEU>  
 A:Cross-references: GB:M32971; NID:9181970; PIDN:AAA35789.1; PID:9181971  
 R:Weinzel, K.; Marne, D.; Welch, H.A.  
 Biochem. Biophys. Res. Commun. 183, 1167-1174, 1992  
 A:Title: AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial  
 A:Reference number: JQ1463; MUID:92231879; PMID:1567395  
 A:Accession: JQ1463  
 A:Molecule type: mRNA  
 A:Residues: 1-140, 'N', 183-232 <WEI>  
 A:Cross-references: EMBL:X62568; NID:937658; PIDN:CAA44447.1; PID:937659  
 A:Experimental source: AIDS-Kaposi's sarcoma cell  
 A:Accession: JQ1464  
 A:Molecule type: mRNA  
 A:Residues: 1-140, 'N', 227-232 <WE2>  
 A:Experimental source: AIDS-Kaposi's sarcoma cell  
 R:Connolly, D.T.; Olander, J.V.; Heuvelman, D.; Nelson, R.; Monseil, R.; Siegel, N.; Hay  
 J. Biol. Chem. 264, 20017-20024, 1989  
 A:Title: Human vascular permeability factor. Isolation from U937 cells.  
 A:Reference number: A34492; MUID:90062112; PMID:2584205  
 A:Accession: A34492  
 A:Molecule type: protein  
 A:Residues: 27-36/43-49, 'R', 72-76, 'O', 78-81/59-71 <CON>  
 C:Comment: The most common of several alternatively spliced forms is VEGF 165.  
 C:Genetics:  
 A:Gene: GDB:VEGF  
 A:Cross-references: GDB:132244; OMIM:192240  
 A:Map position: 6p21-6p12  
 C:Function:

A:Description: promotes fluid and protein leakage from blood vessels  
 C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; extracellular pro  
 F:1-232/Product: vascular endothelial growth factor 206 precursor #status predicted <V20  
 F:1-165, 183-232/Product: vascular endothelial growth factor 189 precursor #status predic  
 F:1-141, 227-232/Product: vascular endothelial growth factor 121 precursor #status predic  
 F:1-26/Domain: signal sequence #status predicted <SIG>  
 F:101/Binding site: carbohydrate (Asn) (covalent) #status predicted  
 Query Match 86.9% Score 206; DB 2; Length 232;  
 Best Local Similarity 90.9% Pred. No. 9e-16;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;  
 QY 2 ERRKHLFV---OTCKSCSKMTDSRCKARQLE-NERTCRCKPRR 41  
 DB 189 ERRKHLFVDPOTCKSCSKMTDSRCKARQLEINERTCRCKPRR 232  
 RESULT 7  
 JQ4680  
 vascular endothelial growth factor-related factor 167 precursor - mouse  
 N:Alternate names: VRF 167 protein  
 C:Species: Mus musculus (house mouse)  
 C:Date: 10-May-1996 #sequence\_revision 19-Jul-1996 #text\_change 05-Nov-1999  
 A:Accession: JQ4680  
 R:Towson, S.; Lagercrantz, J.; Grimmond, S.; Sillins, G.; Nordenkjöld, M.; Weber, G.;  
 Biochem. Biophys. Res. Commun. 220, 922-928, 1996  
 A:Title: Characterization of the murine VEGF-related factor gene.  
 A:Reference number: JQ4679; MUID:96183052; PMID:860786  
 A:Accession: JQ4680  
 A:Molecule type: mRNA  
 A:Residues: 1-188 <TOW>  
 A:Cross-references: GB:U3837; NID:91314335; PIDN:AAC52553.1; PID:91314336  
 C:Comment: This factor is a mitogen, that is selective for endothelial cells, and belong  
 at endothelial growth factors 167 and VEGF 166.  
 C:Genetics:  
 A:Gene: vrf  
 A:Map position: 19  
 A:Introns: 137/2  
 F:1-21/Domain: signal sequence #status predicted <SIG>  
 F:122-188/Product: vascular endothelial growth factor-related factor #status predicted <V  
 Query Match 35.9% Score 85; DB 2; Length 188;  
 Best Local Similarity 42.9% Pred. No. 0.017;  
 Matches 18; Conservative 7; Mismatches 15; Indels 2; Gaps 2;  
 QY 2 ERRKHLFVOTCKSCSKMTD-SRCKARQLE-NERTCRCKPRR 41  
 DB 147 ORQRDPDRTRCRRCRRRFLHCCQGRGLELNPTRCRKPRK 188  
 RESULT 8  
 S69207  
 vascular endothelial growth factor C precursor - human  
 N:Alternate names: FLT4 ligand DHM  
 C:Species: Homo sapiens (man)  
 C:Date: 27-Apr-1996 #sequence\_revision 01-Nov-1996 #text\_change 08-Oct-1999  
 A:Accession: S69207; S61795; S71443; S69208; G02659  
 R:Joukov, V.; Pajusola, K.; Kaipainen, A.; Chliov, D.; Lahtinen, I.; Kukk, E.; Saksela,  
 EMBO J. 15, 1751, 1996  
 A:Title: Corrigendum: A novel vascular endothelial growth factor, VEGF-C, is a ligand fo  
 A:Reference number: S69207; MUID:96203094; PMID:8612600  
 A:Accession: S69207  
 A:Status: nucleic acid sequence not shown  
 A:Molecule type: mRNA  
 A:Residues: 1-419 <JOU>  
 A:Cross-references: EMBL:X94216; NID:91177488; PIDN:CAA63907.1; PID:9221096; PID:9118200  
 A:Note: the nucleotide sequence was submitted to the EMBL Data Library, December 1995  
 A:Note: this is a revision to the sequence from reference S61795  
 R:Joukov, V.; Pajusola, K.; Kaipainen, A.; Chliov, D.; Lahtinen, I.; Kukk, E.; Saksela,  
 EMBO J. 15, 290-298, 1996  
 A:Title: A novel vascular endothelial growth factor, VEGF-C, is a ligand for the FLT4 (V  
 A:Reference number: S61795; MUID:96178224; PMID:8617204

A:Accession: S61795  
 A:Status: nucleic acid sequence not shown; not compared with conceptual translation  
 A:Molecule type: mRNA  
 A:Residues: 70-419 <J0U1>  
 A>Note: This sequence has been revised in reference S69207  
 A:Accession: S71443  
 A:Molecule type: protein  
 A:Residues: 'X', 104-120 <J0U2>  
 A:Lee, J.; Gray, A.; Yuan, J.; Luoh, S.M.; Avraham, H.; Wood, W.I.  
 submitted to the EMBL Data Library, December 1995  
 A:Description: Vascular endothelial growth factor related protein (VRP): A ligand and sg  
 A:Reference number: S69208  
 A:Accession: S69208  
 A:Molecule type: mRNA  
 A:Residues: 1-419 <LEB>  
 A:Cross-references: EMBL:U43142; NID:g1150988; PIDN:AAA5214.1; PID:g1150989  
 R:Morris, U.C.  
 submitted to the EMBL Data Library, May 1996  
 A:Reference number: H01557  
 A:Accession: G02659  
 A:Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: mRNA  
 A:Residues: 1-419 <MOR>  
 A:Cross-references: EMBL:U58111; NID:g1373426; PIDN:AAB02909.1; PID:g1373427  
 C:Genetics:  
 A:Gene: GDB:VEGFC; VRP  
 A:Cross-references: GDB:3890883; OMIM:601528  
 F.1-12/Domain: signal sequence #status predicted <SIG>  
 F.13-102/Domain: propeller #status predicted <PRO>  
 F.103-419/Product: vascular endothelial growth factor C #status experimental <MAT>

Query Match 31.2%; Score 74; DB 2; Length 419;  
 Best Local Similarity 39.5%; Pred. No. 0.48;  
 Matches 15; Conservative 6; Mismatches 15; Indels 2; Gaps 1;

OY 1 CERRHFLVQTCCKSCCKNT--DSRCKARQLENERTCRC 36  
 DB 304 CGPHKELDRNSQCVCCKNKLFPSCGANREPDENTCQC 341

RESULT 9  
 S08167  
 Balbiant ring 3 protein - midge (Chironomus tentans)  
 C:Species: Chironomus tentans  
 C>Date: 30-Sep-1991 #sequence\_revision 30-Sep-1991 #text\_change 21-Jul-2000  
 C:Accession: S08167  
 R:Paulson, G.; Lendahl, U.; Galli, J.; Ericsson, C.; Wieslander, L.  
 J. Mol. Biol. 211, 331-349, 1990  
 A>Title: The balbiant ring 3 gene in Chironomus tentans has a diverged repetitive struct  
 A:Reference number: S08167; MUID:90172404; PMID:1689777  
 A:Accession: S08167  
 A:Status: not compared with conceptual translation  
 A:Molecule type: DNA  
 A:Residues: 1-1700 <PAU>  
 A:Cross-references: GB:X52263; NID:g7057; PIDN:CAA36506.1; PID:g7058  
 C:Genetics:  
 A:Gene: BR3  
 A:Map position: 4  
 C:Superfamily: unassigned Balbiant ring proteins

Query Match 30.0%; Score 71; DB 2; Length 1700;  
 Best Local Similarity 38.5%; Pred. No. 2.7;  
 Matches 15; Conservative 5; Mismatches 11; Indels 8; Gaps 2;

OY 1 CERRHFLVQTCCKSCCKNTDSRCKARQLENERTCRC 39  
 DB 126 CEK-----SCACVCPNAD-KCTAPQVNNKDTCCGCGP 156

RESULT 10  
 U00532  
 185K secretory protein - midge (Chironomus tentans) (fragment)  
 N:Alternate names: balbiant ring 3 protein

C:Species: Chironomus tentans  
 C>Date: 31-Dec-1991 #sequence\_revision 31-Dec-1991 #text\_change 17-Mar-2000  
 C:Accession: J00542  
 R:Dignam, S.S.; Case, S.T.  
 Gene 88, 133-140, 1990  
 A>Title: Balbiant ring 3 in Chironomus tentans encodes a 185-kDa secretory protein which  
 A:Reference number: J00542; MUID:90269600; PMID:2189782  
 A:Accession: J00542  
 A:Molecule type: mRNA  
 A:Residues: 1-160 <DTG>  
 A:Cross-references: GB:M24160  
 A:Experimental source: salivary gland  
 C:Superfamily: unassigned Balbiant ring proteins

Query Match 29.5%; Score 70; DB 2; Length 160;  
 Best Local Similarity 35.5%; Pred. No. 0.66;  
 Matches 11; Conservative 5; Mismatches 15; Indels 0; Gaps 0;

OY 9 VQTCCKSCCKNTDSRCKARQLENERTCRC 39  
 DB 123 INTACCGGIDKPSCPKQIYNWKTCDCECP 153

RESULT 11  
 A55011  
 metallochionein-like protein YOR031w - yeast (Saccharomyces cerevisiae)  
 N:Alternate names: protein O2675  
 C:Species: Saccharomyces cerevisiae  
 C>Date: 11-Nov-1994 #sequence\_revision 11-Nov-1994 #text\_change 19-Apr-2002  
 C:Accession: A55011; S66897  
 R:Culotta, V.C.; Howard, W.R.; Liu, X.F.  
 J. Biol. Chem. 269, 25295-25302, 1994  
 A>Title: CRS5 encodes a metallochionein-like protein in Saccharomyces cerevisiae.  
 A:Reference number: A55011; MUID:95014318; PMID:7929222  
 A:Accession: A55011  
 A:Molecule type: DNA  
 A:Residues: 1-69 <CUL>  
 A:Cross-references: GB:L29056; NID:g499891; PIDN:AAA66061.1; PID:g499892  
 R:de Haan, M.; Grivell, L.A.; Maarek, A.C.  
 submitted to the Protein Sequence Database, July 1996  
 A:Reference number: S66897  
 A:Accession: S66897  
 A:Molecule type: DNA  
 A:Residues: 1-8 <DEH>  
 A:Cross-references: EMBL:Z74939; MIPS:YOR031w  
 A:Experimental source: Strain S288C  
 A>Note: In strain S288C YOR031w is a pseudogene with an inframe stopcodon  
 C:Genetics:  
 A:Gene: SGD:CRS5; CRS5  
 A:Cross-references: SGD:S0005557  
 A:Map position: 15R  
 A>Note: YOR031w  
 A:Function:  
 A:Description: involved in copper homeostasis and detoxification

Query Match 25.7%; Score 61; DB 2; Length 69;  
 Best Local Similarity 31.6%; Pred. No. 3.8;  
 Matches 12; Conservative 5; Mismatches 9; Indels 12; Gaps 2;

OY 10 QTCCK-----SCCKNTDSRCKARQLENERTCRC 40  
 DB 31 EKCKDHSHTGSPQCKSCGCKKC-----ETTCCKSK 63

RESULT 12  
 A33787  
 vascular endothelial growth factor (version 1) - bovine  
 C:Species: Bos primigenius taurus (cattle)  
 C>Date: 16-Mar-1990 #sequence\_revision 16-Mar-1990 #text\_change 05-Nov-1999  
 C:Accession: A33787  
 R:Tischer, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Critch  
 Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989  
 A>Title: Vascular endothelial growth factor: a new member of the platelet-derived growth

A:Reference number: A33787; MUID:90121225; PMID:2610687  
A:Accession: A33787  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-120 <TIS>  
A:Cross-references: GB:M33750; NID:g163810; PIDN:AAA30805.1; PID:g163811  
C:Keywords: alternative splicing

Query Match 25.7%; Score 61; DB 2; Length 120;  
Best Local Similarity 44.1%; Pred. No. 5.5;  
Matches 15; Conservative 4; Mismatches 7; Indels 8; Gaps 2;

QY 8 FVOTCKSCSKNTDSRCKARQLENERTCRCDKPR 41  
DB 95 FLQHNKCECR--PKDKARQE-----KCDKPRR 120

## RESULT 13

S57956  
ovine vascular endothelial growth factor - sheep  
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C:Date: 13-Jan-1996 #sequence\_revision 01-Mar-1996 #text\_change 05-Nov-1999  
C:Accession: S57956  
R:Redmer, D.A.; Dai, Y.; Li, J.; Jones, S.C.; Moor, R.M.  
submitted to the EMBL Data Library, July 1995  
A:Reference number: S57956  
A:Accession: S57956  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-146 <RED>  
A:Cross-references: EMBL:X89506; NID:g899350; PIDN:CAA61677.1; PID:g899351

Query Match 25.7%; Score 61; DB 2; Length 146;  
Best Local Similarity 44.1%; Pred. No. 6.3;  
Matches 15; Conservative 4; Mismatches 7; Indels 8; Gaps 2;

QY 8 FVOTCKSCSKNTDSRCKARQLENERTCRCDKPR 41  
DB 121 FLQHNKCECR--PKDKARQE-----KCDKPRR 146

## RESULT 14

A35281  
Integumentary mucin B.1 - African clawed frog (fragment)  
C:Species: Xenopus laevis (African clawed frog)  
C:Date: 17-Aug-1990 #sequence\_revision 06-Nov-1992 #text\_change 03-Nov-2000  
C:Accession: A35281  
R:Probst, J.C.; Gertzen, E.M.; Hoffmann, W.  
Biochemistry 29, 6240-6244, 1990  
A:Title: An integumentary mucin (FIM-B.1) from Xenopus laevis homologous with von Willebrand factor  
A:Reference number: A35281; MUID:91002513; PMID:2207068  
A:Accession: A35281  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-398 <PRO>  
A:Cross-references: GB:J02910; NID:g214145; PIDN:AAA49711.1; PID:g214146  
C:Superfamily: pig submaxillary mucin

Query Match 25.5%; Score 60.5; DB 2; Length 398;  
Best Local Similarity 34.2%; Pred. No. 14;  
Matches 13; Conservative 7; Mismatches 15; Indels 3; Gaps 2;

QY 6 HLFVOTCK-GSKNTD--SRCKARQLENERTCRCDKPR 40  
DB 183 HMMQTGCDVCTGTSKGTQCAPROCKEIKICKSDERR 220

## RESULT 15

T42215  
zonadhesin - mouse  
N:Alternate names: sperm-specific membrane protein  
C:Species: Mus musculus (house mouse)  
C:Date: 03-Dec-1999 #sequence\_revision 03-Dec-1999 #text\_change 03-Dec-1999

C:Accession: T42215  
R:Gao, Z.; Garbers, D.L.  
J. Biol. Chem. 273, 3415-3421, 1998  
A:Title: Species diversity in the structure of zonadhesin, a sperm-specific membrane protein  
A:Reference number: Z22080; MUID:98123114; PMID:9452463  
A:Accession: T42215  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-5376 <GAO>  
A:Cross-references: EMBL:U97068; NID:g3327420; PID:g3327421; PIDN:AAC26680.1  
C:Genetics:  
A:Gene: Zan  
A:Map position: 5  
C:Function:  
A:Description: functions in multiple cell adhesion processes  
A>Note: found exclusively on the apical region of the sperm head  
C:Keywords: cell adhesion

Query Match 25.3%; Score 60; DB 2; Length 5376;  
Best Local Similarity 44.0%; Pred. No. 95;  
Matches 11; Conservative 2; Mismatches 12; Indels 0; Gaps 0;

QY 11 TCKGSKNTDSRCKARQLENERTCR 35  
DB 4756 TCLPSCSNPDRCCEGTSHKAPSTCR 4780

Search completed: January 30, 2004, 11:46:16  
Job time : 18.6615 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:27:48 ; Search time 9.46154 Seconds  
(without alignment)

203.782 Million cell updates/sec

Title: US-09-266-543-6

Perfect score: 237

Sequence: 1 CERKHLFVQCKSCSKATD.....RCKARQLNERTCRCDKPRR 41

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 127863 seqs, 47026705 residues

Total number of hits satisfying chosen parameters: 127863

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database : SwissProt\_41.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	206	86.9	190	1 VEGA_BOVIN	P16691 bos taurus
2	206	86.9	190	1 VEGA_HORSE	Q96R00 equus caball
3	206	86.9	190	1 VEGA_MESAU	Q99P81 mesocricetu
4	206	86.9	190	1 VEGA_PIG	P49151 sus scrofa
5	206	86.9	214	1 VEGA_CANPA	Q9MYV3 canis famli
6	206	86.9	214	1 VEGA_MOUSE	Q00731 mus musculu
7	206	86.9	214	1 VEGA_RAT	P16612 rattus norv
8	206	86.9	232	1 VEGA_HUMAN	P16592 homo sapien
9	203	85.7	164	1 VEGA_CAVPO	P26617 cavia porce
10	190	80.2	216	1 VEGA_CHICK	P52582 gallus gall
11	74	31.2	419	1 VEGC_HUMAN	P49267 homo sapien
12	71	30.0	1700	1 BAR3_CHITE	Q03376 chironomus
13	69	29.1	415	1 VEGC_MOUSE	P97953 mus musculu
14	61	25.7	69	1 CR85_YEAST	P41902 saccharomyc
15	61	25.7	146	1 VEGA_SHEEP	P50412 ovis aries
16	61	25.7	299	1 SPY4_HUMAN	Q9C004 homo sapien
17	61	25.7	300	1 SPY4_MOUSE	Q9W6P2 mus musculu
18	60.5	25.5	398	1 MUB1_XENLA	P38565 xenopus lae
19	60	25.3	5376	1 ZAN_MOUSE	O88479 mus musculu
20	59.5	25.1	593	1 FA12_BOVIN	P02806 scylla seri
21	59	24.9	2703	1 NOTC_DROME	P070707 dirosophila
22	56	23.6	118	1 PA2A_MICNI	P81166 micrurus ni
23	56	23.6	118	1 PA2B_MICNI	P81167 micrurus ni
24	56	23.6	372	1 LEM1_MOUSE	P18337 mus musculu
25	55.5	23.4	603	1 FA12_CAVPO	Q04962 cavia porce
26	55	23.2	62	1 MT2_CABEL	P17512 caenorhabdi
27	54.5	23.0	57	1 MT2_SCYSE	P02806 scylla seri
28	54.5	23.0	58	1 MT_BORPO	P55952 potamon pot
29	54.5	23.0	74	1 MT1_CABEL	P17511 caenorhabdi
30	54	22.8	84	1 HSPC_ELECI	P83183 eleodone cit
31	54	22.8	93	1 HSPC_HUMAN	P58550 homo sapien
32	54	22.8	139	1 TSHB_SALSA	O73824 salmo salar
33	54	22.8	147	1 TSHB_ONCMY	P37240 oncorhynch

34	53.5	22.6	402	1 LHX5_XENLA	P37137 xenopus lae
35	53.5	22.6	1106	1 STC_DROME	P40798 dirosophila
36	53.5	22.6	1285	1 SL17_ENTHI	P23502 entamoeba h
37	53	22.4	170	1 Y938_HAXIN	P44079 haemophilus
38	53	22.4	225	1 PDGB_RAT	Q05028 rattus norv
39	53	22.4	241	1 PDGB_MOUSE	P31240 mus musculu
40	53	22.4	372	1 LEM1_RAT	P30836 rattus norv
41	53	22.4	686	1 D1L4_MOUSE	Q91171 mus musculu
42	53	22.4	824	1 AD17_HUMAN	P78536 homo sapien
43	52.5	22.2	683	1 RROC_MAIZE	P16024 zea mays (m
44	52	21.9	146	1 PA21_CAVPO	P43434 cavia porce
45	52	21.9	405	1 LHX1_BRAVE	Q90476 brachydanio

## ALIGNMENTS

RESULT 1  
VEGA\_BOVIN STANDARD; PRT; 190 AA.  
AC P16691:  
DT 01-APR-1990 (Rel. 14, Created)  
DT 01-APR-1990 (Rel. 14, Last sequence update)  
DT 28-FEB-2003 (Rel. 41, Last annotation update)  
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Bos taurus (Bovine).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovinae; Bos.  
OC Bovidae; Bovinae; Bos.  
OX NCBI\_TaxID=9913;  
RN [1]  
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-47.  
RX MEDLINE=90069608; PubMed=2479986;  
RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;  
RT "Vascular endothelial growth factor is a secreted angiogenic mitogen.";  
RT Science 246:1306-1309 (1989).  
RN [2]  
RP SEQUENCE OF 27-190 FROM N.A. (ISOFORMS ALPHA AND BETA).  
RX MEDLINE=90121225; PubMed=2610687;  
RA Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J., Lau K., Crisp T., Pridges J.C., Abraham J.A.;  
RT "Vascular endothelial growth factor: a new member of the platelet-derived growth factor gene family.";  
RT Biochem. Biophys. Res. Commun. 165:1198-1206 (1989).  
RN [3]  
RP SEQUENCE OF 27-31.  
RX MEDLINE=89286596; PubMed=2735925;  
RA Ferrara N., Henzel W.J.;  
RT "Plutary follicular cells secrete a novel heparin-binding growth factor specific for vascular endothelial cells.";  
RT Biochem. Biophys. Res. Commun. 161:851-858 (1989).  
CC -!- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
CC -!- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PLGF (By similarity).  
CC -!- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).  
CC -!- ALTERNATIVE PRODUCTS:  
CC Name=Alternative splicing; Named isoforms=2;  
CC Name=Alpha;  
CC IsoId=P15691-1; Sequence=Displayed;  
CC Name=Beta;  
CC IsoId=P15691-2; Sequence=VSP\_004613, VSP\_004614;  
CC -!- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.

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DR EMBL; M32976; AAA30502.1; -  
 DR EMBL; M31336; AAA30804.1; -  
 DR EMBL; M33750; AAA30805.1; -  
 DR PIR; B40080; B40080.  
 DR HSSP; P15692; 1VGH.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 KM Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KM Heparin-binding; Alternative splicing; Multigene family.  
 FT SIGNAL 1 26  
 FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 FT DISULFID 51 93 BY SIMILARITY.  
 FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CARBOHD 100 100 N-LINKED (GLCNAC... ) (POTENTIAL).  
 FT VARSPLIC 139 183 Missing (in isoform Beta).  
 FT VARSPLIC 184 184 /FTid=VSP\_004613.  
 FT VARSPLIC 184 184 R -> K (in isoform Beta).  
 FT FTid=VSP\_004614.  
 SQ SEQUENCE 190 AA; 22310 MW; EDBF903E46E24789 CRC64;

Query Match 86.9%; Score 206; DB 1; Length 190;  
 Best Local Similarity 90.9%; Pred. No. 1e-17;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKHLFV---OTKCSCKNTDSRCKAROLF-NERTCCDKPRR 41  
 Db 147 ERRKHLFVQDPQTCKSCSKNTDSRCKAROLFELNERTCRCDKPRR 190

RESULT 2  
 VEGA\_HORSE STANDARD; PRT; 190 AA.  
 AC Q9GKR0;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Equus caballus (Horse).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Perissodactyla; Equidae; Equus.  
 NCBI\_TaxID=9796;  
 RX [1]  
 RN SEQUENCE FROM N.A.  
 RA Miura N., Misumi K., Kawahara K., Nakashima M., Fukumitsu S., Kawabata H., Uto N., Oka T., Maruyama I., Sakamoto H.;  
 RT "Cloning of cDNA and high-level expression of equine vascular endothelial growth factor (VEGF).";  
 RT Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial cell growth. Induces endothelial proliferation and vascular permeability (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).

CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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DR EMBL; AB053350; BAB20890.1; -  
 DR HSSP; P15692; 1VGH.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 KM Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KM Multigene family.  
 FT SIGNAL 1 26  
 FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 FT DISULFID 51 93 BY SIMILARITY.  
 FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CARBOHD 100 100 N-LINKED (GLCNAC... ) (POTENTIAL).  
 SQ SEQUENCE 190 AA; 22312 MW; 87B9E161395F87 CRC64;

Query Match 86.9%; Score 206; DB 1; Length 190;  
 Best Local Similarity 90.9%; Pred. No. 1e-17;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKHLFV---OTKCSCKNTDSRCKAROLF-NERTCCDKPRR 41  
 Db 147 ERRKHLFVQDPQTCKSCSKNTDSRCKAROLFELNERTCRCDKPRR 190

RESULT 3  
 VEGA\_MESAU STANDARD; PRT; 190 AA.  
 AC Q99PS1;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Mesocricetus auratus (Golden hamster).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae; Mesocricetus.  
 NCBI\_TaxID=10036;  
 RX [1]  
 RN SEQUENCE FROM N.A.  
 RA TISSUE=Decidia, and Embryo;  
 RC MEDLINE=99311285; PubMed=10382276;  
 RA Yi X.U., Jiang H.Y., Lee K.K., Tang P.L., Chow P.H.;  
 RT "Expression of vascular endothelial growth factor (VEGF) and its receptors during embryonic implantation in the golden hamster (Mesocricetus auratus).";  
 RT Cell Tissue Res. 296:339-349 (1999).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).



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CC similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
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CC -----
CC EMBL; AF063013; AAK00049.1; -.
CC DR HSP; P15692; 1VGH.
CC DR InterPro; IPR000072; PD_growth_factor.
CC DR Pfam; PF00341; PDGF; 1.
CC DR ProDom; PD001629; PD_growth_factor; 1.
CC DR SMART; SM00141; PDGF; 1.
CC DR PROSITE; PS00249; PDGF_1; 1.
CC DR PROSITE; PS0278; PDGF_2; 1.
CC KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
CC Heparin-binding; Multigene family.
CC FT SIGNAL 1 26
CC FT CHAIN 27 190
CC FT DISULFID 51 93
CC FT DISULFID 82 127
CC FT DISULFID 86 129
CC FT DISULFID 76 76
CC FT DISULFID 85 85
CC FT CARBOHYD 100 100
CC SQ SEQUENCE 190 AA; 22276 MW; F00C5A8EA79A465F CRC64;

Query Match 86.9%; Score 206; DB 1; Length 190;
Best Local Similarity 90.9%; Pred. No. 1e-17; 0; Indels 4; Gaps 2;
Matches 40; Conservative 0; Mismatches 0;

Qy 2 ERRKLFV---QTKCKSCNTDSRCAROLE-NERTCRDCKPR 41
Db 147 ERRKLFVQDPQTKCKSCNTDSRCAROLELNERCCKDKPR 190

RESULT 4
ID VEGA_PIG STANDARD; PRT; 190 AA.
AC P49151; O9GL52;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OC NCBI_TaxId=9823;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Heart;
RX MEDLINE=95143284; PubMed=7841203;
RA Shatma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;
RT "Nucleotide sequence and expression of the porcine vascular
RT endothelial growth factor."
RL Biochim. Biophys. Acta 1260:235-238 (1995).
RN [2]
RP SEQUENCE FROM N.A.
RA Lee T., Canty J.M.;
RT "PCR Cloning of porcine cardiac vascular endothelial growth factor
RT gene."
CC -1- FUNCTION: Growth factor active in angiogenesis; vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and

```

```

CC heparin (by similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PIGF (by similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (by
CC similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
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CC -----
CC EMBL; X81380; CAA57143.1; -.
CC DR EMBL; AF318502; AAG3064.1; -.
CC DR PIR; S52130; S52130.
CC DR HSP; P15692; 1VGH.
CC DR InterPro; IPR000072; PD_growth_factor.
CC DR Pfam; PF00341; PDGF; 1.
CC DR ProDom; PD001629; PD_growth_factor; 1.
CC DR SMART; SM00141; PDGF; 1.
CC DR PROSITE; PS00249; PDGF_1; 1.
CC DR PROSITE; PS0278; PDGF_2; 1.
CC KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
CC Heparin-binding; Multigene family.
CC FT SIGNAL 1 26
CC FT CHAIN 27 190
CC FT DISULFID 51 93
CC FT DISULFID 82 127
CC FT DISULFID 86 129
CC FT DISULFID 76 76
CC FT DISULFID 85 85
CC FT CARBOHYD 100 100
CC FT CONFLICT 102 102
CC SQ SEQUENCE 190 AA; 22368 MW; 04D40B8D7913047F CRC64;

Query Match 86.9%; Score 206; DB 1; Length 190;
Best Local Similarity 90.9%; Pred. No. 1e-17; 0; Indels 4; Gaps 2;
Matches 40; Conservative 0; Mismatches 0;

Qy 2 ERRKLFV---QTKCKSCNTDSRCAROLE-NERTCRDCKPR 41
Db 147 ERRKLFVQDPQTKCKSCNTDSRCAROLELNERCCKDKPR 190

RESULT 5
ID VEGA_CANFA STANDARD; PRT; 214 AA.
AC Q9MYV3; Q9XSF3; Q9XSF4; Q9XSF5;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Falsipedia; Canidae; Canis.
OC NCBI_TaxId=9615;
RN [1]
RP SEQUENCE FROM N.A. (ISOFORM VEGF-188).
RX MEDLINE=20125516; PubMed=1061874;
RA Scheidegger P., Weighofer W., Suarez S., Kaser-Hotz B., Steiner R.,
RA Balmer-Hofer K., Jausel R.;
RT "Vascular endothelial growth factor (VEGF) and its receptors in tumor-
RT bearing dogs."
RL Biol. Chem. 380:1449-1454 (1999).
RN [2]
RP SEQUENCE FROM N.A. (ISOFORMS VEGF-188; VEGF-182 AND VEGF-164).
RC TISSUE=Heart;

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```

RA Jingjing L., Roque R.S.;
RL Submitted (MAR-1999) to the EMBL/Genbank/DBJ databases.
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (By
CC similarity).
CC -1- ALTERNATIVE PRODUCTS:
CC Event-Alternative splicing; Named isoforms=3;
CC Comment-Additional isoforms seem to exist;
CC Name=VEGF-188;
CC IsoId=Q9MYV3-1; Sequence=Displayed;
CC Name=VEGF-182;
CC IsoId=Q9MYV3-2; Sequence=VSP_004617;
CC Name=VEGF-164;
CC IsoId=Q9MYV3-3; Sequence=VSP_004616;
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
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CC -----
DR EMBL; AJ133758; CAB82426.1; -
DR EMBL; AF133250; AAD28684.1; -
DR EMBL; AF133249; AAD28683.1; -
DR EMBL; AF133248; AAD28682.1; -
DR HSSP; P15692; 1VGH.
DR InterPro: IPR000072; PD_growth_factor.
DR Pfam: PF00341; PDGF_1.
DR ProDom: PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS02078; PDGF_2; 1.
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Alternative splicing; Multigene family.
FT SIGNAL 1 26
FT CHAIN 27 214
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CARBOHYD 100 100
FT VARSPLIC 140 140
FT VARSPLIC 141 164
FT VARSPLIC 159 164
FT CONFLICT 143 143
FT CONFLICT 161 161
SQ SEQUENCE 214 AA; 25175 MW; 0AC980A158C44B27 CRC64;
Query Match 86.9%; Score 206; DB 1; Length 214;
Best Local Similarity 90.9%; Pred. No. 1.2e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;
OY 2 EERKLFV---OTCKSCNKTDSRCAROLR-NERTCRDCKRR 41
DB 171 EERKLFVODPOTCKSCNKTDSRCAROLR-NERTCRDCKRR 214

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VEGA_MOUSE
ID VEGA_MOUSE STANDARD; PRT; 214 AA.
AC 000731;
DT 01-APR-1993 (Rel. 25, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 15-SEP-2003 (Rel. 45, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxId=10090;
RN [1]
RP MEDLINE=92274860; Pubmed=1592003;
RA Breiter G., Albrecht U., Steier S., Risseu W.;
RT "Expression of vascular endothelial growth factor during embryonic
RT angiogenesis and endothelial cell differentiation.";
RL Development 114:521-532(1992).
RN [2]
RP SEQUENCE FROM N.A. (ISOFORM VEGF-1).
RX MEDLINE=9235593; Pubmed=1644816;
RA Clafey K.P., Wilkison W.O., Spiegelman B.M.;
RT "Vascular endothelial growth factor. Regulation by cell
RT differentiation and activated second messenger pathways.";
RL J. Biol. Chem. 267:16317-16322(1992).
RN [3]
RP SEQUENCE OF 1-3 FROM N.A.
RX MEDLINE=96216498; Pubmed=8632007;
RA Shima D.T., Kuroki M., Deusch U., Ng Y., Adams A.P., D'Amore P.A.;
RT "The mouse gene for vascular endothelial growth factor. Genomic
RT structure, definition of the transcriptional unit, and
RT characterization of transcriptional and post-transcriptional
RT regulatory sequences.";
RL J. Biol. Chem. 271:3877-3883(1996).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: VEGF-1 and VEGF-2 are secreted while VEGF-3
CC remains cell-surface associated unless released by heparin.
CC -1- ALTERNATIVE PRODUCTS:
CC Event-Alternative splicing; Named isoforms=3;
CC Name=VEGF-3; Synonyms=VEGF188;
CC IsoId=Q00731-1; Sequence=Displayed;
CC Name=VEGF-1; Synonyms=VEGF164;
CC IsoId=Q00731-2; Sequence=VSP_004626; VSP_004627;
CC Name=VEGF-2; Synonyms=VEGF120;
CC IsoId=Q00731-3; Sequence=VSP_004628;
CC -1- TISSUE SPECIFICITY: In developing embryos, expressed mainly in the
CC choroid plexus, paraventricular neuroepithelium, placenta and
CC kidney glomeruli. Also found in bronchial epithelium, adrenal
CC gland and in seminiferous tubules of testis. High expression of
CC VEGF continues in kidney glomeruli and choroid plexus in adults.
CC -1- DOMAIN: VEGF-3 contains a basic insert which acts as a cell
CC retention signal.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; S37052; AAB22252.1; -
DR EMBL; S38083; AAB22253.1; -

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DR EMBL; S38100; AAB22254.1; -.
DR EMBL; M95200; AAA40547.1; -.
DR EMBL; U91383; -; NOT_ANNOTATED_CDS.
DR PIR; A44881; A44881.
DR PIR; B44881; B44881.
DR HSSP; P15692; 2VPF.
DR MGD; MG1:103178; Vegfa.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS00278; PDGF_2; 1.
DR Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Alternative splicing; Multigene family.
FT SIGNAL 1 26
FT CHAIN 1 26
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CAROHD 100 100
FT VARSPLIC 140 140
FT VARSPLIC 141 164
FT VARSPLIC 141 208
FT CONFLICT 117 118
FT SEQUENCE 214 AA; 25283 MW; B5540B51E4BB617 CRC64;

Query Match
Query Local Similarity 86.9%; Score 206; DB 1; Length 214;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

2 ERRKLFV---OTCKSCCKNTSRCKAROLE-NERTCRCDKPRR 41
Db 171 ERRKLFVDDPOTCKSCCKNTSRCKAROLELNERTCRCDKPRR 214

RESULT 7
VEGA RAT STANDARD; PRT; 214 AA.
AC P16612; O9JKX7; O9QXG6; O9QXG7;
DT 01-AUG-1990 (Rel. 15, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPE).
GN VEGF OR VEGFA.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxId=10116;
[1]
RX SEQUENCE FROM N.A. (ISOFORM VEGF-A164), AND SEQUENCE OF 27-190.
RA MEDLINE=90207249; PubMed=2320579;
RA Conn G., Bayne M.L., Soderman D.D., Kwok P.W., Sullivan K.A.,
RA Palisi T.M., Hope D.A., Thomas K.A.;
RA "Amino acid and cDNA sequences of a vascular endothelial cell mitogen
RA that is homologous to platelet-derived growth factor.",
RL Proc. Natl. Acad. Sci. U.S.A. 87:2628-2633 (1990).
RN [2]
RN SEQUENCE FROM N.A. (ISOFORMS VEGF-A188; VEGF-A164; VEGF-A144 AND
RN VEGF-A120).
RA Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;
RA "Developmental expression of vascular endothelial growth factor-A
RA (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat
RA muscle.",
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
RN [3]
RN SEQUENCE OF 27-40.

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RC TISSUE=Glial tumor;
RX MEDLINE=95221439; PubMed=7706320;
RA Disalvo J., Bayne M.L., Conn G., Kwok P.W., Trivedi P.G.,
RA Soderman D.D., Palisi T.M., Sullivan K.A., Thomas K.A.;
RA "Purification and characterization of a naturally occurring vascular
RA endothelial growth factor (placenta growth factor heterodimer).";
RL J. Biol. Chem. 270:7717-7723 (1995).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: VEGF-A120 is acidic and freely secreted.
CC VEGF-A164 is more basic, has heparin-binding properties and,
CC although a significant proportion remains cell-associated, most is
CC freely secreted. VEGF-A188 is very basic; it is cell-associated
CC after secretion and is bound avidly by heparin and the
CC extracellular matrix, although it may be released as a soluble
CC form by heparin, heparinase or plasmin (By similarity).
CC -1- ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=4;
CC Comment=Additional isoforms seem to exist;
CC Name=VEGF-A188;
CC IsoId=P16612-1; Sequence=Displayed;
CC Name=VEGF-A164;
CC IsoId=P16612-2; Sequence=VSP_004629, VSP_004630;
CC Name=VEGF-A144;
CC IsoId=P16612-3; Sequence=VSP_004632;
CC Name=VEGF-A120;
CC IsoId=P16612-4; Sequence=VSP_004631;
CC -1- TISSUE SPECIFICITY: Expressed in the pituitary, in brain, in
CC particularly in supraoptic and paraventricular nuclei and the
CC choroid plexus. Also found abundantly in the corpus luteum of the
CC ovary and in kidney glomeruli.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
DR EMBL; M32167; AAA41211.1; -.
DR EMBL; AF215725; AAF19211.1; -.
DR EMBL; AF215726; AAF19212.1; -.
DR EMBL; AF222779; AAF25958.1; -.
DR HSSP; P15692; 1VPF.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS00278; PDGF_2; 1.
DR Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Alternative splicing; Multigene family.
FT SIGNAL 1 26
FT CHAIN 1 26
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CAROHD 100 100
FT VARSPLIC 140 140
FT VARSPLIC 141 164
FT VARSPLIC 141 208

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FT VARSPLIC 165 208 /FTId=VSP 004631.  
 RT Missing (in isoform VEGF-A144).  
 FT CONFLICT 101 101 /FTId=VSP 004632.  
 SQ SEQUENCE 214 AA; 25239 MW; 60FBBA76F5304946 CRC64;  
 V -> A (IN REF. 2; AAF19212).  
 Query Match 86.9%; Score 206; DB 1; Length 214;  
 Best Local Similarity 90.9%; Pred No. 1,2e-17;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;  
 Oy 2 ERRKLFV--QTKCKSCNNTDSRCKARQLNERTCRCKR 41  
 Db 171 ERRKLFVQDPQTKCKSCNNTDSRCKARQLNERTCRCKR 214  
 RESULT 8  
 ID VEGF\_HUMAN STANDARD; PRT; 232 AA.  
 AC P15652; O60720; O75875; Q16889; Q96NWS; Q9H1W8; Q9H1W9; Q9UH58;  
 AC Q9U23;  
 DT 01-APR-1990 (Rel. 14, Created)  
 DT 28-SEP-2003 (Rel. 41, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OC NCBI TaxID=9606;  
 RN 1  
 RP SEQUENCE FROM N.A. (ISOFORMS VEGF189 AND VEGF165).  
 RX MEDLINE=90069608; PubMed=2479986;  
 RA Leung D.W., Cachianes G., Kiang W.-J., Goeddel D.V., Ferrara N.;  
 RT "Vascular endothelial growth factor is a secreted angiogenic  
 mitogen.";  
 RT Science 246:1306-1309 (1989).  
 RL [2]  
 RN SEQUENCE FROM N.A. (ISOFORM VEGF189), AND PARTIAL SEQUENCE.  
 RX MEDLINE=90069609; PubMed=2479987;  
 RA Keck P.J., Hauser S.D., Kivvi G., Sanzo K., Warren T., Feder J.,  
 RA Connolly D.T.;  
 RT "Vascular permeability factor, an endothelial cell mitogen related to  
 PDGF.";  
 RT Science 246:1309-1312 (1989).  
 RL [3]  
 RN SEQUENCE FROM N.A. (ISOFORM VEGF189).  
 RX MEDLINE=91268072; PubMed=1711045;  
 RA Tischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D.,  
 RA Fiddes J.C., Abraham J.A.;  
 RT "The human gene for vascular endothelial growth factor. Multiple  
 protein forms are encoded through alternative exon splicing.";  
 RT J. Biol. Chem. 266:11947-11954 (1991).  
 RL [4]  
 RN SEQUENCE FROM N.A. (ISOFORM VEGF206).  
 RX MEDLINE=92168017; PubMed=1791831;  
 RA Houck K.A., Ferrara N., Winer J., Cachianes G., Li B., Leung D.W.;  
 RT "The vascular endothelial growth factor family: identification of a  
 fourth molecular species and characterization of alternative splicing  
 of RNA.";  
 RT Mol. Endocrinol. 5:1806-1814 (1991).  
 RL [5]  
 RN SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RX MEDLINE=92231879; PubMed=1567395;  
 RA Weindel K., Marne D., Welch H.A.;  
 RT "AIDS-associated Kaposi's sarcoma cells in culture express vascular  
 endothelial growth factor.";  
 RT Biochem. Biophys. Res. Commun. 183:1167-1174 (1992).  
 RL [6]  
 RN SEQUENCE FROM N.A. (ISOFORM VEGF145).  
 RP MEDLINE=9720775; PubMed=9054410;  
 RA Poltorak Z., Cohen S., Sivan R., Kandelis Y., Spira G., Vlodavsky I.,  
 RA Keshet E., Neufeld G.;  
 RT "VEGF145, a secreted vascular endothelial growth factor isoform that  
 binds to extracellular matrix.";  
 RT J. Biol. Chem. 272:7151-7158 (1997).  
 RL [7]  
 RN SEQUENCE FROM N.A. (ISOFORM VEGF183).  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF183).  
 RX MEDLINE=99096474; PubMed=9878851;  
 RA Lei J., Jiang A., Pei D.;  
 RT "Identification and characterization of a new splicing variant of  
 vascular endothelial growth factor: VEGF183.";  
 RT Biochim. Biophys. Acta 1443:400-406 (1998).  
 RL [8]  
 RN SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RC TISSUE=Breast;  
 RX MEDLINE=98119755; PubMed=9450968;  
 RA Clafey K.P., Shih S.-C., Mullen A., Dziennis S., Cusick J.L.,  
 RA Abrams K.R., Lee S.W., DeMar M.;  
 RT "Identification of a human VEGF 3' untranslated region mediating  
 hypoxia-induced mRNA stability.";  
 RT Mol. Biol. Cell 9:469-481 (1998).  
 RL [9]  
 RN SEQUENCE OF 114-209 FROM N.A. (ISOFORM VEGF183).  
 RP SEQUENCE OF 114-209 FROM N.A. (ISOFORM VEGF183).  
 RC TISSUE=Retina;  
 RX MEDLINE=99165303; PubMed=10067980;  
 RA Jingjing L., Xue Y., Agarwal N., Roque R.S.;  
 RT "Human Muller cells express VEGF183, a novel spliced variant of  
 vascular endothelial growth factor.";  
 RT Invest. Ophthalmol. Vis. Sci. 40:752-759 (1999).  
 RL [10]  
 RN SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RC TISSUE=Hemangioendothelioma;  
 RA Murata H., Fukuhima J., Hattori S., Okuda K., Yanagi H.;  
 RT "Human CDNA for the vascular endothelial growth factor isoform  
 VEGF165.";  
 RT Submitted (DEC-1998) to the EMBL/GenBank/DBJ databases.  
 RL [11]  
 RN SEQUENCE FROM N.A. (ISOFORM VEGF148).  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF148).  
 RC TISSUE=Renal glomerulus;  
 RX MEDLINE=99394945; PubMed=10464055;  
 RA Whittle C.J., Gillespie K.M., Harrison R., Mathieson P.W.,  
 RA Harper S.J.;  
 RT "Heterogeneous vascular endothelial growth factor (VEGF) isoform mRNA  
 and receptor mRNA expression in human glomeruli, and the  
 identification of VEGF148 mRNA, a novel truncated splice variant.";  
 RT Clin. Sci. 97:303-312 (1999).  
 RL [12]  
 RN SEQUENCE FROM N.A. (ISOFORM VEGF121).  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF121).  
 RA Sato J.D., Whitney R.G.;  
 RT "Human CDNA for vascular endothelial growth factor isoform VEGF121.";  
 RT Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.  
 RL [13]  
 RN SEQUENCE FROM N.A.  
 RP SEQUENCE FROM N.A.  
 RA Williams S.;  
 RT Submitted (DEC-2000) to the EMBL/GenBank/DBJ databases.  
 RL [14]  
 RN SEQUENCE OF 23-232 FROM N.A. (VEGF165).  
 RP SEQUENCE OF 23-232 FROM N.A. (VEGF165).  
 RA Rieder M.J., Armet T.Z., Carrington D.P., Chung M.-W., Lee K.L.,  
 RA Poel C.L., Toch B.J., Yi Q., Nickerson D.A.;  
 RT Submitted (OCT-2001) to the EMBL/GenBank/DBJ databases.  
 RL [15]  
 RN PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.  
 RP MEDLINE=90062112; PubMed=2584205;  
 RA Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monsell R.,  
 RA Siegel N., Haymore B.L., Leimgruber R., Feder J.;  
 RT "Human vascular permeability factor. Isolation from U937 cells.";  
 RT J. Biol. Chem. 264:20017-20024 (1989).  
 RL [16]  
 RN SEQUENCE OF 27-41.  
 RP MEDLINE=93145946; PubMed=7678805;  
 RX Fiebig B.L., Jaeger B., Schoelmann C., Weindel K., Wiltling J.,  
 RA Koebs G., Marne D., Hug H., Welch H.A.;  
 RT "Synthesis and assembly of functionally active human vascular  
 endothelial growth factor homodimers in insect cells.";

RL Eur. J. Biochem. 211:19-26(1993).  
 RN [17]  
 RN X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.  
 RX MEDLINE=97352774; PubMed=9207067;  
 RA Muller Y.A., Li B., Christinger H.W., Wells J.A., Cunningham B.C.,  
 RA de Vos A.M.;  
 RT "Vascular endothelial growth factor: crystal structure and functional  
 RT mapping of the kinase domain receptor binding site."  
 RL Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).  
 RN [18]  
 RN X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.  
 RX MEDLINE=98035455; PubMed=9351807;  
 RA Muller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;  
 RT "The crystal structure of vascular endothelial growth factor (VEGF)  
 RT refined to 1.93-A resolution: multiple copy flexibility and receptor  
 RT binding."  
 RL Structure 5:1325-1338(1997).  
 RN [19]  
 RN X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.  
 RX MEDLINE=99119204; PubMed=9922142;  
 RA Wiseman C., Christinger H.W., Cochran A.G., Cunningham B.C.,  
 RA Falbrocher W.J., Keenan C.J., Meng G., de Vos A.M.;  
 RT "Crystal structure of the complex between VEGF and a receptor-blocking  
 RT peptide."  
 RL Biochemistry 37:17765-17772(1998).  
 RN [20]  
 RN STRUCTURE BY NMR OF 34-135.  
 RX MEDLINE=97477915; PubMed=9336848;  
 RA Falbrocher W.J., Champe M.A., Christinger H.W., Keyt B.A.,  
 RA Starovasnik M.A.;  
 RT "1H, 13C, and 15N backbone assignment and secondary structure of the  
 RT receptor-binding domain of vascular endothelial growth factor."  
 RL Protein Sci. 6:2250-2260(1997).  
 RN [21]  
 RN STRUCTURE BY NMR OF 137-215.  
 RX MEDLINE=98298440; PubMed=9634701;  
 RA Falbrocher W.J., Champe M.A., Christinger H.W., Keyt B.A.,  
 RA Starovasnik M.A.;  
 RT "Solution structure of the heparin-binding domain of vascular  
 RT endothelial growth factor."  
 RL Structure 6:637-648(1998).  
 RN [22]  
 RN FUNCTION.  
 RX MEDLINE=21320570; PubMed=11427521;  
 RA Murphy J.F., Fitzgerald D.J.;  
 RT "Vascular endothelial growth factor induces cyclooxygenase-dependent  
 RT proliferation of endothelial cells via the VEGF-2 receptor."  
 RL FASEB J. 15:1667-1669(2001).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin. Neupilin-1 binds isoforms VEGF-165 and VEGF-145.  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: VEGF121 is acidic and freely secreted.  
 CC VEGF165 is more basic, has heparin-binding properties and,  
 CC although a significant proportion remains cell-associated, most is  
 CC freely secreted. VEGF189 is very basic; it is cell-associated  
 CC after secretion and is bound avidly by heparin and the  
 CC extracellular matrix, although it may be released as a soluble  
 CC form by heparin, heparinase or plasmin.  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=7;  
 CC Comment=Experimental confirmation may be lacking for some  
 CC isoforms;  
 CC Name=VEGF206;  
 CC IsoId=P15692-1; Sequence=Displayed;  
 CC Name=VEGF189;  
 CC IsoId=P15692-2; Sequence=VSP\_004622;  
 CC

Query Match

86.9%; Score 206; DB 1; Length 232;

Best Local Similarity 90.9%; Pred. No. 1.3e-17;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKLFV---OTKCSCKNTDSRCKARQLNERTCCKDPRR 41  
 DB 189 ERRKLFVQDPQTKCSCKNTDSRCKARQLNERTCCKDPRR 232

RESULT 9

VEGA\_CAVPO STANDARD; PRT; 164 AA.  
 ID VEGA\_CAVPO

AC P26617;  
 DT 01-AUG-1992 (Rel. 23, Created)  
 DT 01-AUG-1992 (Rel. 23, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A (VEGF-A) (Vascular permeability  
 DE factor) (VFP).  
 GN VEGF OR VEGFA.  
 OS Cavia porcellus (Guinea pig).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Hystriognathu; Caviidae; Cavia.  
 OX NCBI\_TaxId=10141;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Bile duct;  
 RA Berse B.;  
 RL Submitted (JAN-1992) to the EMBL/GenBank/DBJ databases.

-1- FUNCTION: Growth factor active in angiogenesis, and endothelial

cell growth. Induces endothelial proliferation and vascular

permeability (By similarity).

-1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer

with PlGF (By similarity).

-1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or

to the extracellular matrix unless released by heparin (By

similarity).

-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.

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CC -----

DR EMBL; M84230; AAA37057.1; -.

DR HSSP; P15692; VEGF.

DR InterPro; IPR000072; PD\_growth\_factor.

DR Pfam; PF00341; PDGF\_1.

DR PRODOM; PD001629; PD\_growth\_factor; 1.

DR SMART; SM00141; PDGF\_1.

DR PROSITE; PS00249; PDGF\_1; 1.

DR PROSITE; PS00278; PDGF\_2; 1.

KW Mitogen; Angiogenesis; Growth factor; Glycoprotein.

FT DISULFID 25 67 BY SIMILARITY.

FT DISULFID 56 101 BY SIMILARITY.

FT DISULFID 60 103 BY SIMILARITY.

FT DISULFID 50 50 INTERCHAIN (BY SIMILARITY).

FT DISULFID 59 59 INTERCHAIN (BY SIMILARITY).

FT CARBOHYD 74 74 N-LINKED (GLCNAC... ) (POTENTIAL).

SQ SEQUENCE 164 AA; 19330 MW; 9EB86A81A9D5DCA4 CRC64;

Query Match 85.7%; Score 203; DB 1; Length 164;

Best Local Similarity 88.6%; Pred. No. 2.1e-17;

Matches 39; Conservative 1; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKLFV---OTKCSCKNTDSRCKARQLNERTCCKDPRR 41

DB 121 ERRKLFVQDPQTKCSCKNTDSRCKARQLNERTCCKDPRR 164

RESULT 10

VEGA\_CHICK

ID VEGF CHICK STANDARD; PRT; 216 AA.  
 AC P52582; 091420;  
 DT 01-OCT-1996 (Rel. 34, Created)  
 DT 15-JUN-1998 (Rel. 36, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Gallus gallus (Chicken), and  
 OS Coturnix coturnix japonica (Japanese quail).  
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
 OC Actinopterygii; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;  
 OC Gallus.  
 OC NCBI\_TaxID=9031, 93934;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA SPECIES=Chicken; TISSUE=Heart;  
 RA Takahashi T.;  
 RT "Chick embryonic ventricular myocytes VEGF";  
 RL Submitted (FEB-1998) to the EMBL/Genbank/DDBJ databases.  
 RN [2]  
 RP SEQUENCE FROM N.A. (ISOFORMS VEGF-190; VEGF-166 AND VEGF-146).  
 RC SPECIES=C.c.japonica; TISSUE=Embryo;  
 RX MEDLINE=96005007; PubMed=7556923;  
 RA Flame I., von Reutern M., Drexler H.C., Syed-Ali S., Rissau W.;  
 RT "Overexpression of vascular endothelial growth factor in the avian embryo induces hypervascularization and increased vascular permeability without alterations of embryonic pattern formation.";  
 RL Dev. Biol. 171:399-414 (1995).  
 RN [3]  
 RP SEQUENCE OF 60-187 FROM N.A. (ISOFORMS VEGF-190 AND VEGF-166).  
 RC SPECIES=C.c.japonica;  
 RX MEDLINE=95301109; PubMed=7781909;  
 RA Flame I., Breier G., Rissau W.;  
 RT "Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (Flk-1) are expressed during vasculogenesis and vascular differentiation in the quail embryo";  
 RL Dev. Biol. 169:699-712 (1995).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=3;  
 CC Comment=Additional isoforms seem to exist;  
 CC Name=VEGF-190;  
 CC IsoId=P52582-1; Sequence=Displayed;  
 CC Name=VEGF-166;  
 CC IsoId=P52582-2; Sequence=VSP\_004633; VSP\_004634;  
 CC Note=Has been shown to exist only in quail so far;  
 CC Name=VEGF-146;  
 CC IsoId=P52582-3; Sequence=VSP\_004633; VSP\_004636;  
 CC Note=Has been shown to exist only in quail so far;  
 CC -1- TISSUE SPECIFICITY: Abundantly and equally expressed in heart and liver. In kidney glomeruli, brain and yolk sac, VEGF-166 is 5- to 10-times more abundant than VEGF-190.  
 CC -1- DEVELOPMENTAL STAGE: VEGF-166 is expressed early at day 1 and is upregulated during gastrulation. Expression of VEGF-190 is detectable only from day 2.  
 CC -1- DOMAIN: VEGF-190 contains a basic insert which acts as a cell retention signal.  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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 CC -----  
 DR EMBL: AB011076; BAA24925.1; -  
 DR EMBL: S79680; AAB35371.1; -  
 DR HSSP: P15692; 1VGH.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF\_1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART: SM00141; PDGF\_1.  
 DR PROSITE: PS00249; PDGF\_1; 1.  
 DR PROSITE: PS0278; PDGF\_2; 1.  
 KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal; Heparin-binding; Alternative splicing; Multigene family.  
 FT SIGNAL 1 26  
 FT CHAIN 27 216 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 FT DISULFID 52 94 BY SIMILARITY.  
 FT DISULFID 83 128 BY SIMILARITY.  
 FT DISULFID 87 130 BY SIMILARITY.  
 FT DISULFID 77 77 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 86 86 INTERCHAIN (BY SIMILARITY).  
 FT CARBOHYD 101 101 N-LINKED (GLCNAC...) (POTENTIAL).  
 FT VASAPLIC 142 142 K->N (in isoform VEGF-166).  
 FT VASAPLIC 143 166 /FTId=VSP\_004633.  
 FT VASAPLIC 166 166 Missing (in isoform VEGF-166).  
 FT VASAPLIC 166 166 /FTId=VSP\_004634.  
 FT VASAPLIC 167 210 F->L (in isoform VEGF-146).  
 FT VASAPLIC 167 210 /FTId=VSP\_004635.  
 FT VASAPLIC 167 210 Missing (in isoform VEGF-146).  
 FT VASAPLIC 167 210 /FTId=VSP\_004636.  
 SQ SEQUENCE 216 AA; 25203 MW; 82E669C2F6FC6DAV CRC64;  
 Query Match 80.2%; Score 190; DB 1; Length 216;  
 Best Local Similarity 84.1%; Pred. No. 9, 1e-16;  
 Matches 37; Conservative 2; Mismatches 1; Indels 4; Gaps 2;  
 QY 2 ERRKLFV---QTCCKSCNTDSRCARQLE-NERTCCDKPRR 41  
 DB 173 ERRKLFVQDPQTCCKSCKFTDSRCKRQLELNERTCCEKPRR 216  
 RESULT 11  
 VEGF\_HUMAN STANDARD; PRT; 419 AA.  
 ID VEGF\_HUMAN  
 AC P49767;  
 DT 01-OCT-1996 (Rel. 34, Created)  
 DT 01-OCT-1996 (Rel. 36, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Vascular endothelial growth factor C precursor (VEGF-C) (Vascular endothelial growth factor related protein) (VRP) (Flt4 ligand) (Flt4-l).  
 GN VEGFC.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A. AND SEQUENCE OF 103-120.  
 RX MEDLINE=96178224; PubMed=8617204;  
 RA Joukov V., Pajusola K., Kaipainen A., Chilov D., Lahtinen I., Kukk E., Saksela O., Kalkkinen N., Alitalo K.;  
 RT "A novel vascular endothelial growth factor, VEGF-C, is a ligand for the Flt4 (VEGFR-3) and KDR (VEGFR-2) receptor tyrosine kinases";  
 RL EMBL J. 15:290-298 (1996).  
 RN [2]  
 RP ERRATUM.  
 RX MEDLINE=96203094; PubMed=8612600;  
 RA Joukov V., Pajusola K., Kaipainen A., Chilov D., Lahtinen I., Kukk E., Saksela O., Kalkkinen N., Alitalo K.;  
 RL EMBL J. 15:1751-1751 (1996).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Gial tumor;  
 RX MEDLINE=96312526; PubMed=8700872;

RA Lee J., Gray A., Yuan J., Luo S.-M., Avraham H., Wood W.I.,  
RT "Vascular endothelial growth factor-related protein: a ligand and  
RT specific activator of the tyrosine kinase receptor Flt4.";  
RL Proc. Natl. Acad. Sci. U.S.A. 93:1988-1992 (1996).  
RN [4]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=9738482; PubMed=9247316;  
RA Flitz L.J., Morris J.C., Towler P., Long A., Burgess P., Greco R.,  
RA Wang J., Gassaway R., Nickbarg E., Kovacic S., Charletta A.,  
RA Giamotti J., Finerty H., Zollner R., Belter D.R., Leak L.V.,  
RA Turner K.J., Wood C.R.,  
RT "Characterization of murine Flt4 ligand/VEGF-C.";  
RL Oncogene 15:613-618 (1997).  
RN [5]  
RP SEQUENCE OF 32-41, 112-121 AND 228-233, AND MUTAGENESIS OF ARG-227.  
RX MEDLINE=97377029; PubMed=9233800;  
RA Joukov V., Sorra T., Kumar V., Jeltch M., Claesson-Welsh L., Cao Y.,  
RA Sakela O., Kalkkinen N., Allitalo K.,  
RT "Proteolytic processing regulates receptor specificity and activity of  
RT VEGF-C.";  
RL EMO J. 16:3898-3911 (1997).  
CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial  
CC cell growth, stimulating their proliferation and migration and  
CC also has effects on the permeability of blood vessels. May  
CC function in angiogenesis of the venous and lymphatic vascular  
CC systems during embryogenesis, and also in the maintenance of  
CC differentiated lymphatic endothelium in adults. Binds and  
CC activates VEGFR-2 (Flk1) and VEGFR-3 (Flt4) receptors.  
CC -1- SUBUNIT: Homodimer; non-covalent and antiparallel.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC -1- TISSUE SPECIFICITY: Spleen, lymph node, thymus, appendix, bone  
CC marrow, heart, placenta, ovary, skeletal muscle, prostate, testis,  
CC colon and small intestine and fetal liver, lung and kidney, but  
CC not in peripheral blood lymphocyte.  
CC -1- PTM: Undergoes a complex proteolytic maturation which generates a  
CC variety of processed secreted forms with increased activity toward  
CC VEGFR-3, but only the fully processed form could activate VEGFR-2.  
CC VEGF-C first form an antiparallel homodimer linked by disulfide  
CC bonds. Before secretion, a cleavage occurs between arg-227 and  
CC ser-228 producing an heterotetramer. The next extracellular step  
CC of the processing removes the N-terminal propeptide. Finally the  
CC mature VEGF-C is composed mostly of two VEGF homology domains  
CC (VH8) bound by non-covalent interactions.  
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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CC  
CC -----  
CC EMBL; X94216; CAA63907.1; -  
CC EMBL; U43142; AAA85214.1; -  
CC EMBL; U58111; AAB02909.1; -  
CC PIR; S69207; S69207.  
CC HSP; P15692; 1VPP.  
CC Genew; HGNC:12682; VEGFC.  
CC MIM; 601528; -  
CC GO; GO:0007515; P: lymph gland development; TAS.  
CC GO; GO:0008284; P: signal transduction; TAS.  
CC GO; GO:0007165; P: signal transduction; TAS.  
CC GO; GO:0006929; P: substrate-bound cell migration; TAS.  
CC InterPro; IPR004153; CXKC repeat.  
CC InterPro; IPR002400; GF\_cyknoc.  
CC Pfam; PF03128; CXKC; 5.  
CC Pfam; PF00341; PDGF; 1.  
CC PRINTS; PR00438; GFCYSKNOT.  
CC ProDom; PD001629; PD\_growth\_factor; 1.  
CC SMART; SM00141; PDGF; 1.  
CC PROSITE; PS00249; PDGF\_1; 1.

DR PROSITE; PS00278; PDGF\_2; 1.  
KW Angiogenesis; Mitogen; Growth factor; Glycoprotein; Signal; Repeat;  
KW cleavage on pair of basic residues; Multigene family.  
FT SIGNAL 1 31  
FT PROPEP 32 111 OR 102.  
FT CHAIN 112 227 VASCULAR ENDOTHELIAL GROWTH FACTOR C.  
FT PROPEP 228 419  
FT DOMAIN 280 362  
FT REPEAT 280 295  
FT REPEAT 304 319  
FT REPEAT 328 343  
FT REPEAT 347 362  
FT DISULFID 131 173 BY SIMILARITY.  
FT DISULFID 162 209 BY SIMILARITY.  
FT DISULFID 166 211 BY SIMILARITY.  
FT DISULFID 156 166 INTERCHAIN (BY SIMILARITY).  
FT DISULFID 165 165 INTERCHAIN (BY SIMILARITY).  
FT CARBOHYD 175 175 N-LINKED (GLCNAC. . .) (POTENTIAL).  
FT CARBOHYD 205 205 N-LINKED (GLCNAC. . .) (POTENTIAL).  
FT CARBOHYD 240 240 N-LINKED (GLCNAC. . .) (POTENTIAL).  
FT MUTAGEN 227 227 R->S: NO PROTEOLYTIC PROCESSING AND LOWER  
FT SEQUENCE 419 AA; 46883 MW; 9F598719DB3B014F CRC64;  
SQ  
Query Match 31.2%; Score 74; DB 1; Length 419;  
Best Local Similarity 39.5%; Pred. No. 0.078;  
Matches 15; Conservative 6; Mismatches 15; Indels 2; Gaps 1;  
QY 1 CERRHLFVQTCSCCKNT--DSRCKARQLENERTC 36  
DB 304 CQPKELDRNSQCVCKNKLFPSCQANREPDENTCQC 341  
RESULT 12  
BAR3 CHITE STANDARD; PRT; 1700 AA.  
AC 003376;  
DT 01-OCT-1993 (Rel. 27, Created)  
DT 01-OCT-1993 (Rel. 27, Last sequence update)  
DT 16-OCT-2001 (Rel. 40, Last annotation update)  
DE Balbiant ring protein 3 precursor.  
GN BR3.  
OS Chironomus tentans (Midge).  
OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;  
OC Neoptera; Endopterygota; Diptera; Nematocera; Chironomidae;  
OC Chironomidae; Chironominae; Chironomus.  
OX NCBI\_TaxId=7153;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE-Salivary gland;  
RX MEDLINE=90172404; PubMed=1689777;  
RA Paulsson G., Lendahl U., Gall J., Ericson C., Wieslander L.,  
RT "The Balbiant ring 3 gene in Chironomus tentans has a diverged  
RT repetitive structure split by many introns.";  
RL J. Mol. Biol. 211:331-349 (1990).  
CC -1- FUNCTION: USED BY THE LARVAE TO CONSTRUCT A SUPRAMOLECULAR  
CC STRUCTURE, THE LARVAL TUBE. BALBIANT RING PROTEIN 3 COULD PLAY A  
CC ROLE AS A TRANSPORT PROTEIN THAT BINDS TO OTHER PROTEINS  
CC INTRACELLULARLY AND IN THE GLAND LUMEN IN ORDER TO PREVENT THESE  
CC FROM FORMING WATER-INSOLUBLE FIBERS TOO EARLY.  
CC -1- TISSUE SPECIFICITY: SALIVARY GLAND.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC -1- DOMAIN: HAS 82 APPROXIMATE REPEATS OF CYS-X-CYS-X-CYS.  
CC  
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DR EMBL: X52263; CAA36506.1; -.
DR PIR: S08167; S08167.
DR HSP: P15358; 1SK2.
DR InterPro: IPR004153; CXKCX_repeat.
DR Pfam: PF03128; CXKCX; 71.
DR Repeat: Signal.
FT SIGNAL 1 20
FT CHAIN 21 1700 BALBIANI RING PROTEIN 3.
SQ SEQUENCE 1700 AA; 186145 MW; 342028521B0815 CRC64;

Query Match
Best Local Similarity 30.0%; Score 71; DB 1; Length 1700;
Matches 15; Conservative 5; Mismatches 11; Indels 8; Gaps 2;

OY 1 CERHKLFPVOTCKSCKNTDSRCKARQLENERTCRCDKP 39
Db 126 CER-----SCACVCPNAD-KCTAPQVWKNKDTCCGCP 156

RESULT 13
VEGC_MOUSE STANDARD; PRT; 415 AA.
AC P97953;
DT 15-JUL-1998 (Rel. 36, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Vascular endothelial growth factor C precursor (VEGF-C) (Vascular endothelial growth factor related protein) (VRP) (Flt4 ligand) (Flt4-l).
GN VEGFC.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=BALEB/C;
RX MEDLINE=97164697; PubMed=9012504;
RA Kukk E., Lybouboussaki A., Taira S., Kaipainen A., Jeltsch M., Joukov V., Ahtalo K.;
RT "VEGF-C receptor binding and pattern of expression with VEGFR-3 suggests a role in lymphatic vascular development.";
RL Development 122:3829-3837(1996).
RN [2]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 108-126.
RC STRAIN=BALEB/C;
RX MEDLINE=97384842; PubMed=9247316;
RA Pitz L.J., Morris J.C., Towler P., Long A., Burgess P., Greco R., Wang J., Gassaway R., Nickbarg E., Kovacic S., Charleeta A., Giannotti J., Finerly H., Zollner R., Beier D.R., Leak L.V., Turner K.J., Wood C.R.;
RT "Characterization of murine Flt4 ligand/VEGF-C.";
RL Oncogene 15:613-618(1997).
CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial cell growth, stimulating their proliferation and migration and also has effects on the permeability of blood vessels. May function in angiogenesis of the venous and lymphatic vascular systems during embryogenesis, and also in the maintenance of differentiated lymphatic endothelium in adults. Binds and activates VEGFR-2 (Flk1) and VEGFR-3 (Flt4) receptors.
CC -1- SUBUNIT: Homodimer; non-covalent and antiparallel.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- TISSUE SPECIFICITY: Expression detected in mesenchymal cells of postimplantation embryos, particularly in the regions where the lymphatic vessels undergo sprouting from embryonic veins, such as the perimetamphic, axillary and jugular regions, and in the developing mesenterium. Expressed in adult heart, brain, spleen, lung, liver, skeletal muscle and kidney.
CC -1- PTM: Undergoes a complex proteolytic maturation which generates a variety of processed secreted forms with increased activity toward VEGFR-3, but only the fully processed form could activate VEGFR-2. VEGF-C first form an antiparallel homodimer linked by disulfide bonds. Before secretion, a cleavage occurs between arg-227 and

```

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CC ser-228 producing an heterotrimer. The next extracellular step of the processing removes the N-terminal propeptide. Finally the mature VEGF-C is composed mostly of two VEGF homology domains (VHDS) bound by non-covalent interactions (By similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
DR EMBL: U73620; AAC52984.1; -.
DR EMBL: U58112; AAB46707.1; -.
DR HSP: P15692; 1VPP.
DR MGI: 109124; Vegfc.
DR InterPro: IPR004153; CXKCX_repeat.
DR InterPro: IPR002400; GF_cyknknot.
DR InterPro: IPR000072; PD_growth_factor.
DR Pfam: PF03128; CXKCX; 5.
DR Pfam: PF03441; PDGF; 1.
DR PRINTS: PR00438; GFCYSKNOT.
DR ProDom: PD001629; PD_growth_factor; 1.
DR SMART: SM00141; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
DR PROSITE: PS00278; PDGF_2; 1.
DR KMW: Angiogenesis; Mitogen; Growth factor; Glycoprotein; Signal; Repeat;
KM Cleavage on pair of basic residues; Multigene family.
FT SIGNAL 1 31
FT PROPEP 32 107
FT CHAIN 108 223
FT PROPEP 224 415
FT DOMAIN 276 358
FT REPEAT 276 291
FT REPEAT 300 315
FT REPEAT 324 339
FT REPEAT 343 358
FT DISULFID 127 169
FT DISULFID 158 205
FT DISULFID 162 207
FT DISULFID 152 152
FT DISULFID 161 161
FT CARBOHD 171 171
FT CARBOHD 201 201
FT CARBOHD 236 236
SQ SEQUENCE 415 AA; 46471 MW; D9D3DD3CEC659D6 CRC64;

Query Match
Best Local Similarity 29.1%; Score 69; DB 1; Length 415;
Matches 14; Conservative 6; Mismatches 16; Indels 2; Gaps 1;

OY 1 CERHKLFPVOTCKSCKNT--DSRCKARQLENERTCRC 36
Db 300 CGPHKELDRDSCQCVCKNKLFPNCGANREDENTCCG 337

RESULT 14
CRSS_YEAST STANDARD; PRT; 69 AA.
ID CRSS_YEAST
AC P41902;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Metallothionein-like protein CRSS5.
GN CRSS5 OR YOR031W.
OS Saccharomyces cerevisiae (Baker's yeast).
OC Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
OC Saccharomycetales; Saccharomycetaceae; Saccharomycetes.
OX NCBI_TaxID=4932;
RN [1]

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RP SEQUENCE FROM N.A.
RX MEDLINE=95014318; PubMed=7929222;
RA Culotta V.C., Howard W.R., Liu X.F.;
RT "CRS5 encodes a metallothionein-like protein in Saccharomyces
RL cerevisiae.";
RL J. Biol. Chem. 269:25295-25302(1994).
RN (12)
RP SEQUENCE FROM N.A.
RC STRAIN=8288C; FY1679;
RA de Haan M., Maarse A.C., Grivell L.A.;
RL Submitted (May-1995) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: CRITICAL ROLE IN COPPER (SPECIFIC) HOMEOSTASIS AND
CC DETOXIFICATION. MAY PROTECT BY DIRECTLY CHELATING AND SEQUESTERING
CC COPPER IONS.
CC -1- SIMILARITY: BELONGS TO THE METALLOTHIONEIN SUPERFAMILY; FAMILY 13.
CC -----
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CC -----
DR EMBL; I29056; AAA6061.1; -
DR EMBL; X87331; -; NOT_ANNOTATED_CDS.
DR PIR; A55011; A55011.
DR SGD; S0005557; CRS5.
DR GO; GO:0005507; F:coppper ion binding activity; IMP.
DR GO; GO:0009412; P:response to heavy metal; IMP.
DR Meta1-binding; Metal-thiolate cluster.
KW SEQUENCE 69 AA; 7321 MW; CEEF91203A813FF4 CRC64;
SQ
Query Match 25.7%; Score 61; DB 1; Length 69;
Best Local Similarity 31.6%; Pred. No. 0.52;
Matches 12; Conservative 5; Mismatches 9; Indels 12; Gaps 2;
Oy 10 QTCKC-----SKNTDSRKARQLENERTCRCDKPR 40
Db 31 EKCKDHSSTGSPQCKSGCKKC-----FTCTCKSK 63
RESULT 15
VEGA_SHEEP STANDARD; PRT; 146 AA.
ID P50412;
AC 01-OCT-1996 (rel. 34, Created)
DT 01-OCT-1996 (rel. 34, Last sequence update)
DT 28-FEB-2003 (rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VFP).
GN VEGF OR VEGFA.
OS Ovis aries (Sheep).
OC Eukaryota; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxId=9940;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Kidney;
RX MEDLINE=97117958; PubMed=8958842;
RA Redmer D.A., Dai Y., Li J., Charnock-Jones D.S., Smith S.K.,
RA Reynolds L.P., Moor R.M.;
RT "Characterization and expression of vascular endothelial growth
RT factor (VEGF) in the ovine corpus luteum.";
RL J. Reprod. Fert. 108:157-165(1996).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial growth
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (by similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer

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CC with PlGF (by similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; X89506; CAA61677.1; -
DR PIR; S57956; S57956.
DR HSP; P15692; 1VPP.
DR InterPro: IPR000072; PD_growth_factor.
DR Pfam: PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
KW Mitogen, Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Multigene family.
FT SIGNAL 1 26 BY SIMILARITY.
FT CHAIN 27 146 VASCULAR ENDOTHELIAL GROWTH FACTOR A.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ SEQUENCE 146 AA; 17247 MW; 4E792CB557F91760 CRC64;
Query Match 25.7%; Score 61; DB 1; Length 146;
Best Local Similarity 44.1%; Pred. No. 1;
Matches 15; Conservative 4; Mismatches 7; Indels 8; Gaps 2;
Oy 8 FVOTCKSCSKNTDSRKARQLENERTCRCDKPR 41
Db 121 FLQHNKCECR--PKDKARQF-----KCDKPR 146

```

Search completed: January 30, 2004, 11:41:05  
Job time : 10.4615 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:33:38 ; Search time 42.4718 seconds  
(without alignments)  
249.110 Million cell updates/sec

Title: US-09-266-543-6

Perfect score: 237

Sequence: 1 CERKHLFVQTCCKSCKNNTD.....RCKARQLNERTCRCDKPRR 41

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 830525 seqs, 258052604 residues

Total number of hits satisfying chosen parameters: 830525

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

SPTREMBL\_23:\*

- 1: sp\_archaea:\*
- 2: sp\_bacteria:\*
- 3: sp\_fungi:\*
- 4: sp\_human:\*
- 5: sp\_invertebrate:\*
- 6: sp\_mammal:\*
- 7: sp\_mhc:\*
- 8: sp\_organelle:\*
- 9: sp\_phage:\*
- 10: sp\_plant:\*
- 11: sp\_rodent:\*
- 12: sp\_virus:\*
- 13: sp\_vertebrate:\*
- 14: sp\_unclassified:\*
- 15: sp\_virus:\*
- 16: sp\_bacteriap:\*
- 17: sp\_archaeap:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	206	86.9	64	Q8MT19	Q8MT19 ovis aries
2	206	86.9	102	Q9XT61	Q9XT61 macaca fasc
3	206	86.9	102	Q63672	Q63672 rattus norv
4	206	86.9	109	Q8MIN1	Q8MIN1 capra hircu
5	206	86.9	131	Q8MJ86	Q8MJ86 capreolus c
6	206	86.9	189	Q95104	Q95104 felis silve
7	206	86.9	190	Q77643	Q77643 ovis aries
8	206	86.9	190	Q91ZB1	Q91ZB1 rattus norv
9	206	86.9	190	Q9QX39	Q9QX39 spalax leuc
10	206	86.9	191	Q96182	Q96182 homo sapien
11	206	86.9	191	Q95N85	Q95N85 macaca fasc
12	206	86.9	194	Q8MT20	Q8MT20 ovis aries
13	206	86.9	194	Q42572	Q42572 xenopus lae
14	184	77.6	142	Q9ERL6	Q9ERL6 mesocricetu
15	176.5	74.5	110	Q88911	Q88911 rattus norv
16	169	71.3	123	Q9N1S1	Q9N1S1 capreolus c

17	169	71.3	184	6	Q8HY70	Q8HY70 mustela vis
18	169	71.3	191	4	Q96KJ0	Q96KJ0 homo sapien
19	159	67.1	188	13	Q73682	Q73682 brachydania
20	139.5	58.9	65	11	Q91Y68	Q91Y68 rattus norv
21	139.5	58.9	89	11	Q91Y66	Q91Y66 rattus norv
22	82	34.6	1704	5	Q94446	Q94446 chironomus
23	81.5	34.4	128	6	Q86P15	Q86P15 equus caball
24	75	31.6	1698	5	Q94438	Q94438 chironomus
25	72	30.4	326	11	Q91ZB6	Q91ZB6 meriones un
26	72	30.4	420	6	Q9XS50	Q9XS50 bos taurus
27	68	28.7	188	4	Q8TEV2	Q8TEV2 homo sapien
28	67.5	28.5	124	6	Q96K00	Q96K00 callithrix
29	66	27.8	415	11	Q91ZB3	Q91ZB3 rattus norv
30	64.5	27.2	314	5	Q9BLX1	Q9BLX1 drosophila
31	64.5	27.2	325	5	Q9VWP6	Q9VWP6 drosophila
32	62.5	26.4	92	10	P82620	P82620 arabidopsis
33	62	26.2	304	5	Q9N413	Q9N413 caenorhabdit
34	62	26.2	508	16	Q8G7S3	Q8G7S3 bifidobacte
35	61	25.7	63	5	Q23803	Q23803 chironomus
36	61	25.7	65	6	Q8MIN0	Q8MIN0 capra hircu
37	61	25.7	118	6	Q9MZB1	Q9MZB1 ovis aries
38	61	25.7	132	5	Q97450	Q97450 giardia lam
39	61	25.7	150	5	Q95P79	Q95P79 giardia lam
40	61	25.7	418	13	Q57352	Q57352 coturnix co
41	61	25.7	642	5	Q8MPM6	Q8MPM6 giardia lam
42	61	25.7	739	5	Q9GS24	Q9GS24 giardia lam
43	60	25.3	268	11	Q9DPH8	Q9DPH8 mus musculu
44	60	25.3	742	5	Q818V3	Q818V3 giardia lam
45	60	25.3	5374	11	Q99ND0	Q99ND0 mus musculu

#### ALIGNMENTS

RESULT 1	Q8MT19	PRELIMINARY;	PRT;	64 AA.
ID	Q8MT19			
AC	Q8MT19;			
DT	01-OCT-2002 (TREMBLrel. 22, Created)			
DT	01-OCT-2002 (TREMBLrel. 22, Last sequence update)			
DT	01-OCT-2002 (TREMBLrel. 22, Last annotation update)			
DE	Vascular endothelial growth factor 188 isoform (Fragment).			
OS	Ovis aries (Sheep).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;			
OC	Bovidae; Caprinae; Ovis.			
OK	NCBI_TaxID=9940;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	Tissue=Placental artery endothelium;			
RA	Chung J.-Y., Tsai S.C.M., Wen Y.-X., Magness R.R., Zheng J.,			
RT	"Expression of VEGF receptors in ovine placental artery endothelial			
RT	cells."			
RL	Submitted (AUG-2002) to the EMBL/Genbank/DBJ databases.			
DR	EMBL; AF534638; AAN04109.1; -			
FT	NON TER			
SQ	SEQUENCE 64 AA; 7674 MW; 8BF719596DDEFF6B6 CRC64;			
Query Match	86.9%; Score 206; DB 6; Length 64;			
Best Local Similarity	90.9%; Pred. No. 7.2e-22;			
Matches	40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;			
QY	2 ERKHLFVQTCCKSCKNNTDSCRNQLE-NERTCRCDKPRR 41			
DB	21 ERKHLFVQDPQTCCKSCKNNTDSCRNQLE-NERTCRCDKPRR 64			
RESULT 2	Q9XT61	PRELIMINARY;	PRT;	102 AA.
ID	Q9XT61			
AC	Q9XT61;			
DT	01-NOV-1999 (TREMBLrel. 12, Created)			
DT	01-NOV-1999 (TREMBLrel. 12, Last sequence update)			

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DT 01-MAR-2003 (TREMBlrel. 23, last annotation update)
DE Vascular endothelial growth factor (Fragment).
GN VEGF.
OS Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;
OC Cercopithecinae; Macaca.
OX NCBI_TaxID=9541;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Lung;
RA Kim I.K., Ryan A.M., Rohan R., Amano S., Aguilar S., Miller J.W.,
RA Adams A.P.;
RT "Constitutive expression of VEGF, VEGFR-1 and VEGFR-2 in normal
RT eyes."
RL Submitted (NOV-1998) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF106942; AAD20589.1; -.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
FT NON TER 1
SQ SEQUENCE 102 AA; 12065 MW; 5F2D1A765DC29E02 CRC64;

Query Match 86.9%; Score 206; DB 6; Length 102;
Best Local Similarity 90.9%; Pred. No. 1.1e-21;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERRKHLFV---QTCKSCCKNTDSRCKAROLE-NERTCRCDKPRR 41
DB 59 ERRKHLFVQDPQTCCKSCCKNTDSRCKAROLELNERTCRCDKPRR 102

RESULT 3
OY 063672 PRELIMINARY; PRT; 102 AA.
AC 063672; 063882;
DT 01-NOV-1996 (TREMBlrel. 01, Created)
DT 01-NOV-1998 (TREMBlrel. 08, last sequence update)
DT 01-MAR-2003 (TREMBlrel. 23, last annotation update)
DE Vascular endothelial growth factor (VEGFR188) (Fragment).
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=CD; TISSUE=Lung;
RA Kim I., Ryan A., Rohan R., Aguilar S., Brown L.F.,
RA Miller J., Adams A.P.;
RL Submitted (MAY-1998) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE OF 29-52 FROM N.A.
RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Brain;
RA Yakovlev A.G., Faden A.S.;
RL Submitted (JUL-1993) to the EMBL/GenBank/DBJ databases.
RN [3]
RP SEQUENCE OF 29-52 FROM N.A.
RC TISSUE=Brain;
RA MEDLINE=93343939; PubMed=8343163;
RA Ladoux A., Frelin C.;
RT "Expression of vascular endothelial growth factor by cultured
RT endothelial cells from brain microvessels."
RL Biochem. Biophys. Res. Commun. 194:799-803(1993).
DR EMBL; AF062644; AAC16448.1; -.
DR EMBL; L20913; AAA42334.1; -.
DR EMBL; S64321; AAB27671.1; -.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
FT NON TER 1
SQ SEQUENCE 102 AA; 12163 MW; CDFC6A914D07D2B CRC64;

Query Match 86.9%; Score 206; DB 11; Length 102;
Best Local Similarity 90.9%; Pred. No. 1.1e-21;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

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OY 2 ERRKHLFV---QTCKSCCKNTDSRCKAROLE-NERTCRCDKPRR 41
DB 59 ERRKHLFVQDPQTCCKSCCKNTDSRCKAROLELNERTCRCDKPRR 102

RESULT 4
OY 08M1N1 PRELIMINARY; PRT; 109 AA.
AC 08M1N1;
DT 01-OCT-2002 (TREMBlrel. 22, Created)
DT 01-OCT-2002 (TREMBlrel. 22, last sequence update)
DT 01-MAR-2003 (TREMBlrel. 23, last annotation update)
DE Vascular endothelial growth factor 165 (Fragment).
OS Capra hircus (Goat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Capra.
OX NCBI_TaxID=9925;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Corpus luteum;
RA Kawate N., Tsuji M., Yamada H., Inaba T., Sawada T.;
RT "Changes of Messenger RNAs Encoding Vascular Endothelial Growth Factor
RT and Its Receptors during the Development and Maintenance of Caprine
RT Corpora lutea."
RL Submitted (MAY-2002) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY114352; AAM76673.1; -.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS0276; PDGF_2; 1.
FT NON TER 1
SQ SEQUENCE 109 AA; 12656 MW; 912657251A37E023 CRC64;

Query Match 86.9%; Score 206; DB 6; Length 109;
Best Local Similarity 90.9%; Pred. No. 1.1e-21;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERRKHLFV---QTCKSCCKNTDSRCKAROLE-NERTCRCDKPRR 41
DB 66 ERRKHLFVQDPQTCCKSCCKNTDSRCKAROLELNERTCRCDKPRR 109

RESULT 5
OY 08MJ86 PRELIMINARY; PRT; 131 AA.
AC 08MJ86;
DT 01-OCT-2002 (TREMBlrel. 22, Created)
DT 01-OCT-2002 (TREMBlrel. 22, last sequence update)
DT 01-MAR-2003 (TREMBlrel. 23, last annotation update)
DE Vascular endothelial growth factor-3 (Fragment).
OC Capreolus capreolus (Roe deer).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervidae;
OC Cervidae; Odocoileinae; Capreolus.
OX NCBI_TaxID=9858;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Testis;
RA Wagener A., Fickel J.;
RT "Detection of VEGF in roe deer testis."
RL Submitted (MAY-2002) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF514284; AAM49789.1; -.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS0276; PDGF_2; 1.
FT NON TER 1
FT NON TER 1
SQ SEQUENCE 131 AA; 15358 MW; 99719A58BEAC7FCA CRC64;

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Query Match 86.9%; Score 206; DB 6; Length 131;  
 Best Local Similarity 90.9%; Pred. No. 1.3e-21;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41  
 Db 88 ERRKHLFVQDPQTCKSCSKNTDSRCKAROLELNERTCRCDKPRR 131

## RESULT 6

Q95LQ4 PRELIMINARY; PRT; 189 AA.

AC Q95LQ4;  
 DT 01-DEC-2001 (TREMBlrel. 19, Created)  
 DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor.  
 OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Carnivora; Fissipedia; Felidae; Felis.  
 GN NCB1\_TaxID=9685;

RP [1]  
 RA "SEQUENCE FROM N.A.  
 Koga T., Kobayashi Y., Yazawa M., Masuda K., Ohno K., Tsujimoto H.;  
 "Nucleotide sequence and expression of the feline vascular endothelial  
 growth factor."  
 RT Submitted (SEP-2001) to the EMBL/GenBank/DBJ databases.

DR EMBL; AB071947; BAB68520.1; -  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 SQ SEQUENCE 189 AA; 22193 MW; C1E4646759AB3FD6 CRC64;

Query Match 86.9%; Score 206; DB 6; Length 189;  
 Best Local Similarity 90.9%; Pred. No. 1.8e-21;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41  
 Db 146 ERRKHLFVQDPQTCKSCSKNTDSRCKAROLELNERTCRCDKPRR 189

## RESULT 7

O77643 PRELIMINARY; PRT; 190 AA.

AC O77643;  
 DT 01-NOV-1998 (TREMBlrel. 08, Created)  
 DT 01-NOV-1998 (TREMBlrel. 08, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor.  
 GN VEGF.  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Caprinae; Ovis.  
 GN NCB1\_TaxID=9940;

RP [1]  
 RA "SEQUENCE FROM N.A.  
 STRAIN=Columbia-Rambouillet;  
 Cheung C.Y., Brace R.A.;

RT "Ovine vascular endothelial growth factor: Nucleotide sequence and  
 expression in fetal tissues."  
 RL Growth Factors 0:0-0(1998).  
 DR EMBL; AF071015; AAC23608.1; -

DR HSSP; P49763; 1FZV.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.

DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 SQ SEQUENCE 190 AA; 22342 MW; 0D5E3B3E5C5E3739 CRC64;

Query Match 86.9%; Score 206; DB 6; Length 190;  
 Best Local Similarity 90.9%; Pred. No. 1.9e-21;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41  
 Db 147 ERRKHLFVQDPQTCKSCSKNTDSRCKAROLELNERTCRCDKPRR 190

## RESULT 8

O91ZE1 PRELIMINARY; PRT; 190 AA.

AC O91ZE1;  
 DT 01-DEC-2001 (TREMBlrel. 19, Created)  
 DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor.  
 GN VEGF.

OS Rattus norvegicus (Rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Rattus.  
 GN NCB1\_TaxID=10116;

RP [1]  
 RA "SEQUENCE FROM N.A.  
 STRAIN=Sprague-Dawley;  
 Marlon S., Lee T.-C.;  
 "Cloning of multiple VEGF splice variants from hypoxic neonatal rat  
 cardiomyocytes."  
 RT Submitted (APR-2001) to the EMBL/GenBank/DBJ databases.

DR EMBL; AY033506; AAL07526.1; -  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 SQ SEQUENCE 190 AA; 22396 MW; 58937401041F377 CRC64;

Query Match 86.9%; Score 206; DB 11; Length 190;  
 Best Local Similarity 90.9%; Pred. No. 1.9e-21;  
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRCDKPRR 41  
 Db 147 ERRKHLFVQDPQTCKSCSKNTDSRCKAROLELNERTCRCDKPRR 190

## RESULT 9

O90X39 PRELIMINARY; PRT; 190 AA.

AC O90X39;  
 DT 01-MAY-2000 (TREMBlrel. 13, Created)  
 DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor.  
 GN VEGF.

OS Spalax leucodon ehrenbergi (Ehrenberg's mole rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Spalacinae;  
 OC Nanospalax.  
 GN NCB1\_TaxID=30637;

RP [1]  
 RA "SEQUENCE FROM N.A.  
 MEDLINE=99313148; PubMed=10386577;

RX AVIvi A., Resnick M.B., Nevo E., Joel A., Levy A.P.;  
 "Adaptive hypoxic tolerance in the subterranean mole rat Spalax  
 ehrenbergi: the role of vascular endothelial growth factor."  
 RL FEBS Lett. 452:133-140(1999).  
 DR EMBL; AF186236; AAD56245.1; -



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RA Cleaver O., Tonissen K.F., Saha M.S., Krieg P.A.;
RT "Neovascularization of the Xenopus embryo.";
RL Dev. Dyn. 0:0-0(1997).
DR EMBL; AF008594; AAB63680.1; -.
DR HSSP; P49763; 1FZV.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
SQ SEQUENCE 194 AA; 22672 MW; 85D7BEC7CEFE17E CRC64;

Query Match
Best Local Similarity 74.5%; Score 190; DB 13; Length 194;
Matches 38; Conservative 2; Mismatches 1; Indels 10; Gaps 3;

Qy 1 CE-----RRKHLFV---QTCKSCCKNTDSRCKARQLE-NERTCRCDKPRR 41
Db 144 CEPCTEKQRKHLFVQDPQTCCKSCCKNTDSRCKRQLELNERTCRCKPRR 194

RESULT 14
Q9ERL6 PRELIMINARY; PRT; 142 AA.
AC Q9ERL6;
DT 01-MAR-2001 (Tremblrel. 16, Last sequence update)
DT 01-MAR-2001 (Tremblrel. 16, Last sequence update)
DT 01-MAR-2003 (Tremblrel. 23, Last annotation update)
DE Vascular endothelial growth factor VEGF (Fragment).
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Mesocricetus.
OX NCBI_TaxID=10036;
RN [1]
RP SEQUENCE FROM N.A.
RA Ramesh G., Kondalish P., Seehagiri P.B.;
RT "Regulation of expression of transforming growth factor-beta's by
RT steroid hormone in the hamster uterus.";
RL Submitted (AUG-2000) to the EMBL/Genbank/DBJ databases.
DR EMBL; AF297627; AAG16241.1; -.
DR HSSP; P49763; 1FZV.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
FT NON_TER 1
FT NON_TER 1
SQ SEQUENCE 142 AA; 16621 MW; F7DA16D924E499E CRC64;

Query Match
Best Local Similarity 77.6%; Score 184; DB 11; Length 142;
Matches 36; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Qy 2 ERRKHLFV---QTCKSCCKNTDSRCKARQLE-NERTCRCD 37
Db 103 ERRKHLFVQDPQTCCKSCCKNTDSRCKARQLELNERTCRCD 142

RESULT 15
Q88911 PRELIMINARY; PRT; 110 AA.
AC Q88911;
DT 01-NOV-1998 (Tremblrel. 08, Created)
DT 01-NOV-1998 (Tremblrel. 08, Last sequence update)
DT 01-MAR-2003 (Tremblrel. 23, Last annotation update)
DE Vascular endothelial growth factor A 110 (Fragment).
OS VEGF.
GN VEGF.
OC Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

```

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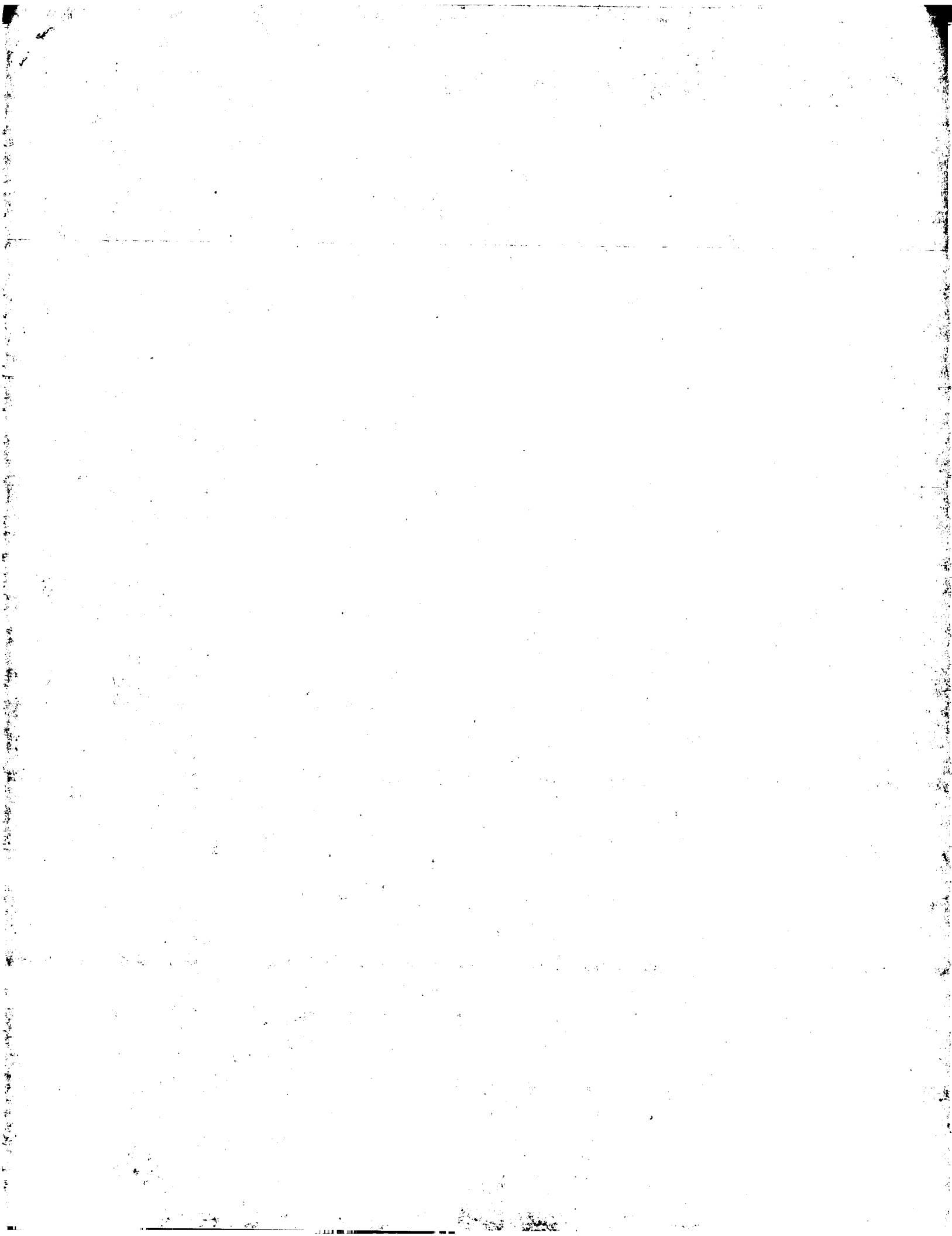
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RA STRAIN=Sprague-Dawley, TISSUE=Penis;
RX MEDLINE=9911528; PubMed=9916007;
RA Burchard M., Burchard T., Chen M.W., Shabsigh A., de la Taille A.,
RA Buttan R., Shabsigh R.;
RT "Expression of messenger ribonucleic acid splice variants for vascular
RT endothelial growth factor in the penis of adult rats and humans.";
RL Biol. Reprod. 60:398-404(1999).
DR EMBL; AF080594; AAC36708.1; -.
DR HSSP; P49763; 1FZV.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR PRINTS; PR00438; GFCSKNOT.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
FT NON_TER 1
FT NON_TER 1
SQ SEQUENCE 110 AA; 12713 MW; B81B79AC08D89F06 CRC64;

Query Match
Best Local Similarity 74.5%; Score 176.5; DB 11; Length 110;
Matches 32; Conservative 1; Mismatches 0; Indels 1; Gaps 1;

Qy 9 VQTCCKSCCKNTDSRCKARQLE-NERTCRCDKPRR 41
Db 77 MQTCCKSCCKNTDSRCKARQLELNERTCRCDKPRR 110

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Search completed: January 30, 2004, 11:44:41  
 Job time : 43.4718 secs





GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:27:08 ; Search time 35.6 Seconds  
(without alignments)  
115.924 Million cell updates/sec

Title: US-09-266-543-7

Perfect score: 138  
Sequence: 1 CNDEGLSEVPFESNITQIMRIKPH 26

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1107863 seqs, 158726573 residues

Total number of hits satisfying chosen parameters: 1107863

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

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21: /SIDSI/gcgdata/geneeq/geneeqp-emb1/AA2000.DAT.\*  
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23: /SIDSI/gcgdata/geneeq/geneeqp-emb1/AA2002.DAT.\*  
24: /SIDSI/gcgdata/geneeq/geneeqp-emb1/AA2003.DAT.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	138	100.0	26	21	AA18548
2	133	96.4	101	24	AAE32330
3	133	96.4	102	22	AAU08484
4	133	96.4	105	21	AA53387
5	133	96.4	105	22	AAU08407
6	133	96.4	105	22	AAU08411
7	133	96.4	110	21	AAV69417
8	133	96.4	110	21	AAV83038
9	133	96.4	110	22	AA679276

10	133	96.4	110	22	AA50436	Human VEGF110. Ho
11	133	96.4	110	23	AB76304	Human vascular end
12	133	96.4	121	12	AA11385	Human vascular end
13	133	96.4	121	14	AA42607	Human VEGF-121. H
14	133	96.4	121	17	AA09091	Human VEGF/VPF121
15	133	96.4	121	17	AAW03677	Vascular permeabil
16	133	96.4	121	17	AA96043	Human vascular per
17	133	96.4	121	17	AA93977	Vascular permeabil
18	133	96.4	121	19	AAW40597	VEGF/VPF121. Homo
19	133	96.4	121	20	AAV23943	Amino acid sequenc
20	133	96.4	121	20	AAV08278	Human growth facto
21	133	96.4	121	21	AAV99848	Human vascular end
22	133	96.4	121	22	AA550428	Mature human vascu
23	133	96.4	121	24	AB84619	Human VEGF121 mono
24	133	96.4	121	24	AA833329	Human vascular end
25	133	96.4	126	22	AAU08403	Polypeptide encode
26	133	96.4	127	22	AAU08405	Polypeptide encode
27	133	96.4	127	22	AAU08423	Polypeptide encode
28	133	96.4	127	22	AAU08427	Polypeptide encode
29	133	96.4	141	24	ABG71756	Human vascular end
30	133	96.4	145	19	AAW56693	Vascular endotheli
31	133	96.4	145	20	AAV08279	Human growth facto
32	133	96.4	145	21	AAV69413	Amino acid sequenc
33	133	96.4	145	21	AAV83034	Human vascular end
34	133	96.4	145	22	AA550432	Human VEGF145. Ho
35	133	96.4	145	23	AB876300	Human vascular end
36	133	96.4	147	16	AA91075	Human vascular end
37	133	96.4	147	17	AA94001	VEGF121. Homo sap
38	133	96.4	147	19	AAW62524	Amino acid sequenc
39	133	96.4	147	20	AAV33437	Parapox virus VEGF
40	133	96.4	147	21	AAV90402	VEGF encoded by c1
41	133	96.4	147	21	AAV69412	Amino acid sequenc
42	133	96.4	147	21	AAV83033	Human vascular end
43	133	96.4	147	22	AA98080	Human VEGF splice
44	133	96.4	147	22	AA50427	Human vascular end
45	133	96.4	147	22	AA50431	Human VEGF121. Ho

#### ALIGNMENTS

RESULT 1	AA18548	standard; peptide; 26 AA.
ID	AA18548	
AC	AA18548	
DT	15-JAN-2001	(first entry)
DE	Immunogenic peptide fragment derived from FGF and/or VEGF.	
KW	Immunogenic peptide; fibroblast growth factor; FGF; VEGF; cancer;	
KW	vascular endothelial growth factor; hypertroliferative disorder;	
KW	haemangioma; solid tumour; blood borne tumour; leukaemia; metastasis;	
KW	telangiectasia; psoriasis; scleroderma; pyogenic granuloma;	
KW	myocardial angiogenesis; Crohn's disease; plaque neovascularisation;	
KW	arteriovenous malformation; corneal disease; rubecosis;	
KW	neovascular glaucoma; diabetic retinopathy; retrolental fibroplasia;	
KW	arthritis; diabetic neovascularisation; macular degeneration;	
KW	wound healing; peptic ulcer; Helicobacter related disease; fracture;	
KW	keloid; vasculogenesis; hematopoiesis; ovulation; menstruation;	
KW	placentation; cat scratch fever.	
OS	Unidentified.	
XX	WO200053219-A2.	
PN	14-SEP-2000.	
XX	10-MAR-2000; 2000WO-US06320.	
PD	11-MAR-1999; 99US-0266543.	
XX		
PR		
XX		

PA (ENTR-) ENTREMED INC.  
 XX  
 PI Holaday JW, Ruiz A, Madsen J;  
 XX WPI; 2000-594263/56.  
 DR  
 XX An immunogenic composition useful for treating cancer or  
 PT hyperproliferative disorders comprising an immunogenic peptide fragment  
 PT of fibroblast growth factor and/or vascular endothelial growth factor -  
 XX  
 PS Claim 13; Page 28; 95pp; English.  
 CC AAB18542-51 represent immunogenic peptide fragments of fibroblast  
 CC growth factor (FGF) and/or vascular endothelial growth factor (VEGF).  
 CC The peptides are used to produce immunogenic compositions. The  
 CC immunogenic composition is used for treating cancer or  
 CC hyperproliferative disorders, especially haemangioma, solid tumours,  
 CC blood borne tumours, leukaemia, metastasis, telangiectasia, psoriasis,  
 CC scleroderma, pyogenic granuloma, myocardial angiogenesis, Crohn's  
 CC disease, plaque neovascularisation, arteriovenous malformations,  
 CC corneal diseases, rubecosis, neovascular glaucoma, diabetic retinopathy,  
 CC retrolental fibroplasia, arthritis, diabetic neovascularisation, macular  
 CC degeneration, wound healing, peptic ulcer, Helicobacter related  
 CC diseases, fractures, keloids, vasculogenesis, hematopoiesis, ovulation,  
 CC menstruation, placentalation and cat scratch fever.  
 SQ Sequence 26 AA;  
 Query Match 100.0%; Score 138; DB 21; Length 26;  
 Best Local Similarity 100.0%; Pred. No. 8.4e-15;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CNDGGLSVPTRESNITWQIMRIKPH 26  
 Db 1 CNDGGLSVPTRESNITWQIMRIKPH 26  
 RESULT 2  
 AAE32330  
 ID AAE32330 standard; Protein; 101 AA.  
 XX  
 AC AAE32330;  
 XX  
 DT 24-MAR-2003 (first entry)  
 XX  
 DE Human VEGF-A receptor binding domain.  
 XX  
 KW Vascular endothelial growth factor; VEGF; angiogenesis; wound healing;  
 KW bone growth; osteoporosis; osteoarthritis; bone reconstruction; ulcer;  
 KW lesion; injury; trauma; periodontal condition; protein therapy; human.  
 XX  
 OS Homo sapiens.  
 XX  
 PN WO200283851-A2.  
 XX  
 PD 24-OCT-2002.  
 XX  
 PF 10-APR-2002; 2002WO-US11406.  
 XX  
 PR 10-APR-2001; 2001US-0832355.  
 XX  
 PA (GENVE-) GENVEEC INC.  
 XX  
 PI Kovesdi I, Kessler PD;  
 DR WPI; 2003-075536/07.  
 XX  
 PT New fusion protein comprising a non-heparin-binding vascular  
 PT endothelial growth factor (VEGF) peptide portion and a non-VEGF peptide  
 PT portion, useful for promoting angiogenesis and/or bone growth in  
 PT mammals -  
 PS Disclosure; Page 118-119; 191pp; English.

XX The invention relates to a fusion protein comprising non-heparin binding  
 CC vascular endothelial growth factor (VEGF) peptide portion and a non-VEGF  
 CC peptide portion useful for promoting angiogenesis and/or bone growth in  
 CC mammalian host. The fusion protein is useful for promoting angiogenesis,  
 CC wound healing and bone growth. Compositions containing bone growth  
 CC promoting fusion protein can be used to treat osteoporosis, rheumatoid  
 CC or osteoarthritis, to improve poor bone healing, to promote implant  
 CC integration and function of artificial joints and to facilitate bone  
 CC reconstruction. They can also be used to treat e.g. ulcers, lesions,  
 CC injuries, burns, trauma, periodontal conditions, lacerations and other  
 CC conditions. The invention is also useful in protein therapy. The present  
 CC sequence is human VEGF-A receptor binding domain.  
 SQ Sequence 101 AA;  
 Query Match 96.4%; Score 133; DB 24; Length 101;  
 Best Local Similarity 96.2%; Pred. No. 2.7e-13;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 CNDGGLSVPTRESNITWQIMRIKPH 26  
 Db 53 CNDGGLSVPTRESNITWQIMRIKPH 78  
 RESULT 3  
 AAU08484  
 ID AAU08484 standard; Peptide; 102 AA.  
 XX  
 AC AAU08484;  
 XX  
 DT 21-NOV-2001 (first entry)  
 XX  
 DE VEGF-1 binding epitope from human VEGF-A.  
 XX  
 KW Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;  
 KW angiogenesis; blood vessel; cancer; proliferative retinopathy;  
 KW psoriasis; age-related macular degeneration; rheumatoid arthritis;  
 KW cardiovascular; VEGFR-1.  
 XX  
 OS Homo sapiens.  
 XX  
 PN WO200162942-A2.  
 XX  
 PD 30-AUG-2001.  
 XX  
 PF 26-FEB-2001; 2001WO-US06113.  
 XX  
 PR 25-FEB-2000; 2000US-0185205.  
 PR 18-MAY-2000; 2000US-0205331.  
 XX  
 PA (LUDW-) LUDWIG INST CANCER RES.  
 PA (LICN ) LICENTIA OY.  
 XX  
 PI Alitalo K, Jeltsch MM;  
 DR WPI; 2001-536640/59.  
 XX  
 PT Polypeptides that bind cellular receptors for vascular endothelial  
 PT growth factors, polynucleotides encoding them -  
 XX  
 PS Example 4; Page 115; 261pp; English.  
 CC The present invention relates to polypeptides that bind cellular  
 CC receptors for vascular endothelial growth factors (VEGFs), the  
 CC polynucleotides encoding them, and their use for identifying agents that  
 CC modulate interactions between VEGFs and their receptors. VEGFs and their  
 CC receptors play an important role in vasculogenesis, the development of  
 CC the embryonic vasculature from early differentiating endothelial cells  
 CC and angiogenesis, the process of forming new blood vessels from  
 CC pre-existing ones. Modulators of interactions between VEGF and its  
 CC receptors may be used to treat dysfunction of the endothelial cell  
 CC regulatory system. Such disorders include cancers, abnormal angiogenesis,

CC proliferative retinopathies, age-related macular degeneration, rheumatoid  
 CC arthritis and psoriasis. The polypeptides of the invention exhibit unique  
 CC receptor binding profiles compared to known naturally occurring VEGFs.  
 CC The present sequence represents VEGFR-1 binding epitope from human  
 CC VEGF-A.

XX Sequence 102 AA;

SO Query Match 96.4%; Score 133; DB 22; Length 102;

Best Local Similarity 96.2%; Pred. No. 2.7e-13;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTESNITWQIMRIKPH 26

DB 54 CNDGLECVPTESNITWQIMRIKPH 79

RESULT 4

AAB53387 ID AAB53387 standard; Protein; 105 AA.

XX AAB53387;

DT 09-MAR-2001 (first entry)

DE Human colon cancer antigen protein sequence SEQ ID NO:927.

XX Human; colon cancer; colon cancer antigen; diagnosis; detection;  
 XX identification; cytostatic; cardioprotective; vulnery;  
 XX immunomodulatory; muscular; gynaecological; gastrointestinal;  
 XX nephrotropic; antineoplastic; antibacterial; gene therapy; wound;  
 XX neural disorder; immune system disorder; muscular disorder;  
 XX reproductive disorder; gastrointestinal disorder; renal disorder;  
 XX infectious disease; cardiovascular disorder.

XX Homo sapiens.

OS WO20005351-A1.

PN 21-SEP-2000.

PD 08-MAR-2000; 2000WO-US05883.

PF 12-MAR-1999; 99US-0124270.

PR (HUMA-) HUMAN GENOME SCI INC.

PI Rosen CA, Ruben SM;

XX MPI; 2000-587534/55.

DR N-PSDB; AAC98144.

PT Colon cancer associated gene sequences, referred to as colon cancer  
 PT antigens, useful for the treatment, prevention, and diagnosis of colon  
 PT disorders such as colon cancer -

XX Claim 11; Page 1486; 2104pp; English.

XX AAC97991 to AAC98763 encode the human colon cancer associated proteins,  
 CC called human colon cancer antigens, given in AAB5334 to AAB54006. The  
 CC human colon cancer antigens can have cytostatic, cardioprotective, muscular;  
 CC neuroprotective, immunomodulatory, gynaecological, gastrointestinal,  
 CC vulnery, nephrotropic, antineoplastic and antibacterial activities, and  
 CC can be used in gene therapy. The colon cancer antigen polynucleotides,  
 CC proteins and antibodies to the proteins are useful for the prevention,  
 CC treatment and diagnosis of colon disorders, such as colon cancer. The  
 CC polynucleotides may be used in diagnostics and research, such as for  
 CC chromosome identification, and as hybridisation probes. The proteins  
 CC may also be used to prevent diseases such as neural disorders, immune  
 CC system disorders, muscular disorders, reproductive disorders,  
 CC gastrointestinal disorders, wounds, renal disorders, infectious  
 CC diseases, and cardiovascular disorders. AAC98764 to AAC98772 and  
 CC AAB54007 represent sequences used in the exemplification of the present

CC invention.

XX Sequence 105 AA;

SO Query Match 96.4%; Score 133; DB 21; Length 105;

Best Local Similarity 96.2%; Pred. No. 2.8e-13;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTESNITWQIMRIKPH 26

DB 45 CNDGLECVPTESNITWQIMRIKPH 70

RESULT 5

AU08407 ID AU08407 standard; Protein; 105 AA.

XX AU08407;

DT 21-NOV-2001 (first entry)

DE Polypeptide encoded by human VEGF-A/VEGF-C hybrid clone 12-1.

XX Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;  
 XX angiogenesis; blood vessel; cancer; proliferative retinopathy;  
 XX psoriasis; age-related macular degeneration; rheumatoid arthritis;  
 XX cardiovascular; VEGF-C; mutant; mutein.

XX Homo sapiens.

OS Synthetic.

FT Key Location/Qualifiers

FT Domain 1..102 "VEGF receptor binding domain"

FT WO200162942-A2.

PN 30-AUG-2001.

PD 26-FEB-2001; 2001WO-US06113.

PF 25-FEB-2000; 2000US-0185205.

PR 18-MAY-2000; 2000US-0205331.

PR (LUDM-) LUDWIG INST CANCER RES.

PI Altalo K, Jeltsch MM;

XX MPI; 2001-536640/59.

DR N-PSDB; AAS12844.

PT Polypeptides that bind cellular receptors for vascular endothelial  
 PT growth factors, polynucleotides encoding them -

XX Claim 35; Page 182; 261pp; English.

XX The present invention relates to polypeptides that bind cellular  
 CC receptors for vascular endothelial growth factors (VEGFs), the  
 CC polynucleotides encoding them, and their use for identifying agents that  
 CC modulate interactions between VEGFs and their receptors. VEGFs and their  
 CC receptors play an important role in vasculogenesis, the development of  
 CC the embryonic vasculature from early differentiating endothelial cells  
 CC and angiogenesis, the process of forming new blood vessels from  
 CC pre-existing ones. Modulators of interactions between VEGF and its  
 CC receptors may be used to treat dysfunction of the endothelial cell  
 CC regulatory system. Such disorders include cancers, abnormal angiogenesis,  
 CC proliferative retinopathies, age-related macular degeneration, rheumatoid  
 CC arthritis and psoriasis. The polypeptides of the invention exhibit unique  
 CC receptor binding profiles compared to known naturally occurring VEGFs.  
 CC The present sequence represents the polypeptide encoded by human  
 CC VEGF-A/VEGF-C hybrid construct clone 12-1.

SQ Sequence 105 AA;  
 Query Match 96.4%; Score 133; DB 22; Length 105;  
 Best Local Similarity 96.2%; Pred. No. 2.8e-13;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEBSNITMQIMRIKPH 26  
 |||||  
 DB 54 CNDGELCVCPTESNITMQIMRIKPH 79

RESULT 6  
 AAU08411 standard; Protein; 105 AA.  
 AAU08411;  
 21-NOV-2001 (first entry)  
 Polypeptide encoded by human VEGF-A/VEGF-C hybrid clone 12-5.  
 Human; vascular endothelial growth factor; VEGF-A; angiogenesis;  
 angiogenesis; blood vessel; cancer; proliferative retinopathy;  
 psoriasis; age-related macular degeneration; rheumatoid arthritis;  
 cardiovascular; VEGF-C; mutant; mutein.  
 Homo sapiens.  
 Synthetic.  
 Key Location/Qualifiers  
 FT Domain 1..102  
 FT /note= "VEGF receptor binding domain"  
 PN WO200162942-A2.  
 PD 30-AUG-2001.  
 PF 26-FEB-2001; 2001WO-US06113.  
 PR 25-FEB-2000; 2000US-0195205.  
 PR 18-MAY-2000; 2000US-0205331.  
 PA (LUDW-) LUDWIG INST CANCER RES.  
 PA (LICN) LICENTIA OY.  
 PI Alitalo K, Jeltsch MM;  
 DR WPI; 2001-536640/59.  
 DR N-PSDB; AAS12848.  
 PT Polypeptides that bind cellular receptors for vascular endothelial  
 growth factors, polynucleotides encoding them -  
 PS Claim 36; Page 186-187; 261pp; English.  
 XX The present invention relates to polypeptides that bind cellular  
 XX receptors for vascular endothelial growth factors (VEGFs), the  
 XX polynucleotides encoding them, and their use for identifying agents that  
 XX modulate interactions between VEGFs and their receptors. VEGFs and their  
 XX receptors play an important role in vasculogenesis, the development of  
 XX the embryonic vasculature from early differentiating endothelial cells  
 XX and angiogenesis, the process of forming new blood vessels from  
 XX pre-existing ones. Modulators of interactions between VEGF and its  
 XX receptors may be used to treat dysfunction of the endothelial cell  
 XX regulatory system. Such disorders include cancers, abnormal angiogenesis,  
 XX proliferative retinopathies, age-related macular degeneration, rheumatoid  
 XX arthritis and psoriasis. The polypeptides of the invention exhibit unique  
 XX receptor binding profiles compared to known naturally occurring VEGFs.  
 CC The present sequence represents the polypeptide encoded by human  
 CC VEGF-A/VEGF-C hybrid construct clone 12-5.  
 XX  
 XX Sequence 105 AA;  
 SQ

Query Match 96.4%; Score 133; DB 22; Length 105;  
 Best Local Similarity 96.2%; Pred. No. 2.8e-13;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEBSNITMQIMRIKPH 26  
 |||||  
 DB 54 CNDGELCVCPTESNITMQIMRIKPH 79

RESULT 7  
 AA69417 standard; Protein; 110 AA.  
 AA69417;  
 03-JUL-2000 (first entry)  
 Amino acid sequence of vascular endothelial growth factor 110.  
 Human; vascular endothelial growth factor; VEGF 110; angiogenic factor;  
 blood vessel injury; vascular injury; microvascular angiopathy;  
 thrombotic microangiopathy; kidney disease; hemolytic uremic syndrome;  
 toxic shock syndrome; venom; hypercoagulable state; platelet activation;  
 platelet aggregation; thrombosis; preclampsia; sepsis; pancreatitis;  
 intravascular coagulation; thrombotic thrombocytopenia purpura;  
 acute renal failure; myocardial infarction; ischemic bowel disease;  
 stroke; hypoxia; hypercapnia; fibrosis; toxic alveolar injury;  
 acute respiratory distress syndrome; pneumonia; pulmonary emboli;  
 birth prematurity disorder; wound; allergy; hypernatremia;  
 autoimmune disease; organ transplant; focal glomerulosclerosis;  
 amyloidosis.  
 Homo sapiens.  
 PN WO200013702-A2.  
 PD 16-MAR-2000.  
 PF 09-SEP-1999; 99WO-US02480.  
 PR 09-SEP-1998; 98US-0099694.  
 PR 26-MAR-1999; 99US-0126406.  
 PR 27-MAR-1999; 99US-0126615.  
 PA (SCIO-) SCIOS INC.  
 PI Schreiner GF, Johnson RJ;  
 DR WPI; 2000-256861/22.  
 PT Novel methods and compositions for the prevention and treatment of  
 PT microvascular angiopathies by administration of angiogenic factors such  
 PT as vascular endothelial growth factor (VEGF) -  
 PS Disclosure; Fig 12; 46pp; English.  
 XX The present sequence represents native human vascular endothelial growth  
 XX factor (VEGF) 110. VEGF is an angiogenic factor. VEGF proteins are used  
 XX for the prevention or repair of injury to blood vessels or associated  
 XX nonvascular tissues (served by the blood vessels) and for the prevention  
 XX and repair of vascular injury associated with microvascular angiopathy,  
 XX particularly thrombotic microangiopathy. The proteins methods may also  
 XX be used for the prevention and treatment of kidney diseases associated  
 XX with injury to, or atrophy of, the vasculature of the glomerulus and  
 XX interstitium. Conditions which may be treated include hemolytic uremic  
 XX syndrome, toxic shock syndrome, venom exposure, chemical exposure,  
 XX hypercoagulable states, platelet activation or aggregation, thrombosis,  
 XX preclampsia, thrombotic thrombocytopenia purpura, disseminated  
 XX intravascular coagulation, sepsis, pancreatitis, acute renal failure,  
 XX myocardial infarction, ischemic bowel disease, transient ischemic  
 XX attacks, stroke, hypoxia or hypercapnia or fibrosis arising from lung  
 XX endothelium injury, acute respiratory distress syndrome, toxic alveolar  
 CC injury, pneumonia, pulmonary emboli, birth prematurity disorders,  
 CC

CC wounds, allergic reactions, hypersensitivity, autoimmune diseases, organ  
CC transplants, focal glomerulosclerosis, and amyloidosis.

SO Sequence 110 AA;

Query Match 96.4%; Score 133; DB 21; Length 110;  
Best Local Similarity 96.2%; Pred. No. 2.9e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITQIMRIKPH 26  
Db 61 CNDGLESVPTEESNITQIMRIKPH 86

RESULT 8  
AAV83038  
ID AAV83038 standard; Protein; 110 AA.

AAV83038;

DT 04-JUL-2000 (first entry)

DE Human vascular endothelial growth factor (hVEGF110).

KM Vascular endothelial growth factor; human; angiogenesis; VEGF;  
KM capillary formation; hypertension; treatment; kidney; CNS; stroke;  
KM meningitis; central nervous system; tumour; infection; bone growth;  
KM hypoxia; hypercapnia; fibrosis; inflammatory bowel disease;  
KM diarrhoea; allografts; cardiac valve.

OS Homo sapiens.

PN WO20013703-A2.

PD 16-MAR-2000.

PF 09-SEP-1999; 99WO-US20481.

PR 09-SEP-1998; 98US-0099694.

PR 26-MAR-1999; 99US-0126406.

PR 27-MAR-1999; 99US-0126615.

PA (SCIO-) SCIOS INC.

PI Schreiner GF, Johnson RJ;

DR WPI; 2000-256662/22.

Novel methods for treating hypertension by administering a factor which  
increases angiogenesis and/or vascular permeability -  
Disclosure; Figure 11; 51pp; English.

XX Administering vascular endothelial growth factor (VEGF) can be used  
CC for treating hypertension (especially salt-dependent hypertension)  
CC Administration of VEGF promotes angiogenesis and/or vascular or  
CC capillary permeability. The method is also useful in treating  
CC disorders related to abnormal transport of solutes across endothelial  
CC cells. Such disorders include the treatment or prevention of kidney  
CC disease associated with impaired filtration or excretion of solutes;  
CC the treatment or prevention of diseases of the central nervous system  
CC associated with alterations in cerebrospinal fluid, e.g. stroke,  
CC meningitis, tumour, infections, and bone growth disorders; treatment  
CC or prevention of hypoxia or hypercapnia or fibrosis arising from  
CC accumulation of fluid secretions in the lungs, e.g. acute respiratory  
CC distress syndrome, toxic alveolar injury, pneumonia, infections,  
CC surgical intervention, cystic fibrosis; treatment or prevention of  
CC pulmonary dysfunction arising from injury to the pulmonary  
CC endothelium, including disorders arising from premature birth, and  
CC pulmonary hypertension; treatment or prevention of disease arising  
CC from disordered transport of fluid and solutes across the intestinal  
CC epithelium, e.g. inflammatory bowel disease, diarrhoea; treatment or  
CC prevention of ascites accumulation in the peritoneum; enhancement of

CC efficacy of solute flux; preservation or enhancement of function of  
CC organ allografts; and treatment of cardiac valve disease. This  
CC sequence is the native human vascular endothelial growth  
CC factor hVEGF110. The activity of VEGF is mediated by interaction  
CC with specific receptors on target tissues, most notably the vascular  
CC endothelium. VEGF exists as five different length monomer chains due  
CC to alternative splicing of the VEGF RNA transcript.

SO Sequence 110 AA;

Query Match 96.4%; Score 133; DB 21; Length 110;  
Best Local Similarity 96.2%; Pred. No. 2.9e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITQIMRIKPH 26  
Db 61 CNDGLESVPTEESNITQIMRIKPH 86

RESULT 9  
AAG79276

ID AAG79276 standard; peptide; 110 AA.

AC AAG79276;

DT 03-JAN-2002 (first entry)

DE Primary sequence of vascular endothelial growth factor (VEGF).

KM Kinase domain receptor; KDR; vascular endothelial growth factor; VEGF;  
KM VEGF antibody; angiogenesis; cancer; diabetic retinopathy; psoriasis;  
KM hemangioblastoma; Kaposi's sarcoma.

OS Unidentified.

PN WO200172829-A2.

PD 04-OCT-2001.

PF 29-MAR-2001; 2001WO-1B00577.

PR 31-MAR-2000; 2000US-193396P.

PA (INSP) INST PASTEUR.

PA (CNRS) CNRS CENT NAT RECH SCI.

PA (UTPA-) UNIV PARIS 13 NORD.

PI Tournaire R, Demangel C, Derbin C, Perret G, Mazie J, Plouet J;

PI Vasey R;

DR WPI; 2001-616471/71.

Novel peptides inhibiting binding of vascular endothelial growth factor  
(VEGF) to kinase domain receptor, or inhibiting binding of anti-VEGF  
PT antibody to VEGF, useful for treating diabetic retinopathy and  
PT psoriasis -  
Example; Page 21; 55pp; English.

XX The present sequence represents vascular endothelial growth factor  
CC (VEGF). The specification describes peptides which bind to an  
CC anti-VEGF antibody or which bind to a kinase domain receptor (KDR).  
CC The peptides inhibit the binding of VEGF to KDR, and inhibit binding  
CC of anti-VEGF antibody to VEGF. The peptides are useful for inhibiting  
CC angiogenesis and for treating diseases including cancer, diabetic  
CC retinopathy, psoriasis, hemangioblastoma, and Kaposi's sarcoma.

SO Sequence 110 AA;

Query Match 96.4%; Score 133; DB 22; Length 110;  
Best Local Similarity 96.2%; Pred. No. 2.9e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Oy 1 CNDGLESVPTESNITWQIRKPH 26  
 |||||  
 Db 61 CNDGLECVPTESNITWQIRKPH 86

RESULT 10  
 AAB50436  
 ID AAB50436 standard; Protein; 110 AA.

XX AAB50436;

XX 13-MAR-2001 (first entry)

XX Human VEGF110.

XX Human, VEGF; vascular endothelial growth factor; VEGF121; VEGF145;  
 KW cardiatic; cerebroprotective; hypotensive; nephroprotective; antidiabetic;  
 KW dermatological; immunosuppressive; antiinflammatory; cytostatic;  
 KW vasotrophic; antibacterial; angiogenesis; vascular remodeling;  
 KW vascular disease; kidney disease; diabetes; systemic lupus erythematosus;  
 KW meningitis; tumour; infection; lung disease inflammatory bowel disease-

XX Homo sapiens.

XX WO200071713-A1.

XX 30-NOV-2000.

XX 18-MAY-2000; 2000WO-US13536.

XX 20-MAY-1999; 99US-0135312.

XX (SCIO-) SCTOS INC.

XX Politt NS, Abraham JA;

XX WPI; 2001-025162/03.

XX Enhancing biological activity of vascular endothelial growth factor by  
 PT replacing a Cys residue, for producing variant useful for treating  
 PT hypertension, stroke, diabetes, lupus, glomerulonephritis, meningitis,  
 PT tumor, pneumonia, infections -

XX Disclosure; Fig 12; 62pp; English.

XX The present sequence is given in a specification relating to a method for  
 CC enhancing the biological activity of a vascular endothelial growth factor  
 CC (VEGF) originally having a cysteine residue at a position 116 of the 121  
 CC amino acid native mature human VEGF. The method comprises eliminating the  
 CC cysteine residue to produce a VEGF variant. The variant is useful for  
 CC inducing angiogenesis or vascular remodeling, for prevention or repair  
 CC of injury to blood vessels, where injury is associated with haemolytic  
 CC uremic syndrome (HUS) or microvascular angiotomy such as thrombotic  
 CC microangiopathy (TMA). The VEGF variant is also useful for treatment of  
 CC essential hypertension in a patient. The variant is useful for treating  
 CC coronary artery disease and/or peripheral arterial disease, to foster  
 CC myocardial blood vessel growth and to improve blood flow to the heart. It  
 CC is useful for the treatment and prevention of kidney diseases associated  
 CC with injury to, or atrophy of, the vasculature of the glomerulus and  
 CC interstitium and for the treatment and prevention of acute renal failure,  
 CC myocardial infarction, ischaemic bowel disease, transient ischaemic  
 CC attack, stroke, hypoxia, hypercapnia, focal glomerulosclerosis,  
 CC amyloidosis, glomerulonephritis, diabetes, systemic lupus erythematosus  
 CC or chronic hypoxia/atrophy. It is also useful in the preservation or  
 CC enhancement of function of organ allografts and xenografts, and for  
 CC treating disorders related to abnormal transport of solutes across  
 CC endothelial cells such as meningitis, tumour, infections, disorders of  
 CC bone growth, acute respiratory distress syndrome, toxic alveolar injury,  
 CC pneumonia, cystic fibrosis, inflammatory bowel disease, infectious  
 CC diarrhoea or cardiac valve disease.

XX Sequence 110 AA;

Query Match 96.4%; Score 133; DB 22; Length 110;  
 Best Local Similarity 96.2%; Pred. No. 2,98-13;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Oy 1 CNDGLESVPTESNITWQIRKPH 26  
 |||||  
 Db 61 CNDGLECVPTESNITWQIRKPH 86

RESULT 11

AB876304  
 ID AB876304 standard; Protein; 110 AA.

XX AB876304;

XX 12-AUG-2002 (first entry)

XX Human vascular endothelial growth factor 110.

XX Vascular endothelial growth factor; VEGF; hVEGF110; human;  
 KW hypertension; hypotensive; nephroprotective; cerebroprotective;  
 KW antibacterial; cytostatic; antialcoholic; virucide; vasotrophic;  
 KW antiarthritic; immunosuppressive; cardiatic; antiinflammatory;  
 KW angiogenic factor.

XX Homo sapiens.

XX US6352975-B1.

XX 05-MAR-2002.

XX 09-SEP-1999; 99US-0392932.

XX 09-SEP-1998; 98US-099694P.

XX 26-MAR-1999; 99US-126406P.

XX 27-MAR-1999; 99US-126615P.

XX (SCIO-) SCTOS INC.

XX Schreiner GF, Johnson RJ;

XX WPI; 2002-412951/44.

XX New method, useful in treatment of salt-sensitive hypertension,  
 PT comprises administration of a vascular endothelial growth factor to a  
 PT patient -

XX Disclosure; Fig 11; 30pp; English.

XX The present sequence is the protein sequence of human vascular  
 CC endothelial growth factor 110 (hVEGF110). The present invention  
 CC concerns methods for the treatment of salt-sensitive hypertension  
 CC by administering a VEGF in an amount effective to reduce the blood  
 CC pressure of a salt-sensitive hypertension patient to a normal  
 CC range. The VEGF is preferably hVEGF121 (see AB876299) or a VEGF  
 CC that has had its heparin-binding domain modified to render it  
 CC incapable of binding heparin, e.g. by amino acid alteration.  
 CC VEGF110 is not one of the preferred VEGF molecules. The method can  
 CC also be used to treat disorders relating to abnormal transport of  
 CC solutes across endothelial cells, including treatment or prevention  
 CC of kidney diseases associated with impaired filtration or excretion  
 CC of solutes, central nervous system diseases associated with  
 CC alterations in cerebrospinal fluid synthesis, composition or  
 CC circulation including stroke, meningitis, tumour, infections, and  
 CC disorders of bone growth, hypoxia or hypercapnia or fibrosis  
 CC arising from accumulation of fluid secretions in lungs or  
 CC impediments to their removal, including acute respiratory distress  
 CC syndrome, toxic alveolar injury as occurs in smoke inhalation,  
 CC pneumonia including viral and bacterial infections, surgical  
 CC interventions, cystic fibrosis, and other inherited or acquired  
 CC disease of the lung associated with fluid accumulation in the  
 CC pulmonary air space, pulmonary endothelium injury, disordered  
 CC transport of fluid and solutes across the intestinal epithelium,

CC including inflammatory bowel disease, infections, diarrhea,  
 CC ascites accumulation in the peritoneum as occurs in the failure of  
 CC heart, liver and kidney, preservation and enhancement of function  
 CC of organ allografts, and cardiac valve disease.

CC Sequence 110 AA;

Query Match 96.4%; Score 133; DB 23; Length 110;  
 Best Local Similarity 96.2%; Pred. No. 2.9e-13;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTEESNITWQIMRIKPH 26  
 DB 61 CNDEGLECVPTESNITWQIMRIKPH 86

# RESULT 12

AA11385 standard; Protein; 121 AA.

AA11385;

25-MAR-2003 (updated)  
 08-MAY-1991 (first entry)

Human vascular endothelial cell growth factor 121.

Boyvine vascular endothelial cell growth factor; angiogenesis;  
 wound healing; hVEGF; PDGF.

Bos taurus.

MO9102058-A.

21-FEB-1991.

27-JUL-1990; 90WO-US04227.

14-DEC-1989; 89US-0450883.

27-JUL-1989; 89US-0387545.

(CALD) CALIFORNIA BIOTECHNOLOGY INC.

Tischer ER, Abraham, Fiddes JC, Mitchell RL;

WPI; 1991-073534/10.

N-PSDB; AAQ11099.

DNA encoding vascular endothelial cell growth factor - used for  
 PT producing the factor for angiogenesis and re-endothelialisation  
 PT in wound healing

Disclousure; Fig 7(1-2); 94pp; English.

The two forms of VEGF (AAQ10797 and AAQ10917) which arise through  
 CC different message splicing, have different properties. In partic.  
 CC hVEGFP121 does not bind to heparin leaving more of the protein free to  
 CC bind to VEGF receptor and increase the half-life and distribution of  
 CC the protein in circulation, whereas hVEGF165 binds heparin strongly.

The product can be used for angiogenesis and re-endothelialisation  
 CC of inner vascular surfaces in wound healing, e.g. treatment of full-  
 CC thickness wounds such as dermal ulcers, venous ulcers and diabetic  
 CC ulcers, burns, in surgery, in balloon angioplasty and for the in  
 CC vitro culturing of endothelial cells. Hybrid growth factors of PDGF  
 CC and VEGF can exhibit a mitogenic profile between each factor and  
 CC can be used for wound healing or as inhibitors of angiogenesis for  
 CC e.g. preventing the growth of tumours.

CC VEGF analogues in which Cys residues are substd. are more stable.

CC See also AAQ10791-93; AAQ10796-97; AAQ10806-08 and AAQ11099.

CC (Updated on 25-MAR-2003 to correct PA field.)

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

Query Match 96.4%; Score 133; DB 12; Length 121;  
 Best Local Similarity 96.2%; Pred. No. 3.3e-13;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTEESNITWQIMRIKPH 26  
 DB 61 CNDEGLECVPTESNITWQIMRIKPH 86

# RESULT 13

AA42607 standard; Protein; 121 AA.

AA42607;

25-MAR-2003 (updated)  
 28-OCT-1993 (first entry)

Human VEGF-121.

Angiogenesis; wound healing; mitogen; vascular endothelial cells;  
 Vascular Endothelial Cell Growth Factor; hVEGF-165; hVEGF-121.

Homo sapiens.

Key Location/Qualifiers

Misc-difference 7/note= "inserted amino acid relative to bVEGF"

Misc-difference 115/note= "Lys 115 of hVEGF-121 is replaced by 44  
 amino acids encoded by an alternatively  
 spliced exon in hVEGF-165 (see AAR38921)"

US5219739-A.

15-JUN-1993.

27-JUL-1990; 90US-0559041.

27-JUL-1989; 89US-0387545.

14-DEC-1989; 89US-0450883.

27-JUL-1990; 90US-0559041.

(SCIO-) SCIOS NOVA INC.

Abraham UA, Fiddes JC, Mitchell RL, Tischer EG;

WPI; 1993-205302/25.

N-PSDB; AAQ49601.

Isolated DNA sequences, expression vectors and transformant cells  
 PT - used for large scale prodn. of vascular endothelial cell growth  
 PT factor, for treating wounds in which neo-vascularisation is  
 PT required

Claim 3; Fig 7; 40pp; English.

The sequence of AAQ42607 contains an open reading frame corresponding  
 CC to the 165 amino acid human vascular endothelial cell growth  
 CC factor (hVEGF-165, see AAR38921). Alternative splicing of the  
 CC sequence gives a shorter coding sequence which encodes the 121  
 CC amino acid hVEGF (see AAR42607). The full-length coding sequences can  
 CC be generated using PCR with human foetal vascular smooth muscle  
 CC poly-A+ RNA as template.

CC (Updated on 25-MAR-2003 to correct PF field.)

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

CC Sequence 121 AA;

DB 61 CNDEGLECVPTESNITWQIMRIKPH 86

## RESULT 14

AAW09091 standard; protein; 121 AA.

AAW09091;

05-MAR-1997 (first entry)

Human VEGF/VPF121 for treatment of vascularisation diseases.

VEGF; VPF; vascular endothelial cell growth factor;

vascular permeability factor; vaccine; vascularisation; cancer;

glioma; eye tumour; trachoma; psoriasis; granuloma;

hypertrophic scar; post-crystalline fibrosis;

senile disk muscular degeneration.

Homo sapiens.

JP08225462-A.

03-SEP-1996.

30-NOV-1995; 95JP-0312562.

01-DEC-1994; 94JP-0298718.

(TOAG ) TOA GOSEI CHEM IND LTD.

WPI; 1996-450932/45.

Vaccine for treatment of vascularisation diseases, e.g. cancer -

comprises peptide derived from vascular endothelial cell growth

factor

Example; Page 6-7; 7pp; Japanese.

A vaccine for treatment and prevention of diseases caused by

vascularisation comprising a cell growth factor or its fragments

which stimulate vascular cell proliferation is provided. The

vaccine can be used for treating cancers, glaucoma, eye tumours,

trachoma, psoriasis, granuloma, hypertrophic scars,

post-crystalline fibrosis and senile disk muscular degeneration.

A preferred protein for use in the vaccine is human VEGF/VPF121,

i.e. the present sequence.

Sequence 121 AA;

Query Match 96.4%; Score 133; DB 17; Length 121;

Best Local Similarity 96.2%; Pred. No. 3.3e-13;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

1 CNDEGLESVPTESNITWQIMRIKPH 26

61 CNDEGLECVPTESNITWQIMRIKPH 86

RESULT 15

AAW03677

ID AAW03677 standard; protein; 121 AA.

AAW03677;

31-DEC-1996 (first entry)

Vascular permeability factor.

Vascular permeability factor; growth factor; overlapping peptide;

monoclonal antibody; hybridoma; cancer.

OS Synthetic.

JP08169898-A.

02-JUL-1996.

06-JUN-1995; 95JP-0162841.

18-OCT-1994; 94JP-0278387.

10-JUN-1994; 94JP-0152805.

(TOAG ) TOA GOSEI CHEM IND LTD.

WPI; 1996-358508/36.

New peptide, useful as antigen for preparing vascular permeability

factor monoclonal antibody - is used in treatment agent for cancers

and as biochemical reagents

Disclosure; Page 10; 13pp; Japanese.

This is the amino acid sequence of the vascular permeability factor

(VPF), a member of the growth factor family. Several VPF types are

known having 121, 165, 189 or 206 amino acids. This sequence was used

to generate a series of overlapping peptides having 10 residues which

were used to raise antibodies against the VPF peptide. The two peptides

AAW03678-9 generated the greatest antibody signal against the VPF

protein. These clones were used to manufacture hybridomas producing

monoclonal antibodies which are useful for diagnosis and treatment of

cancers and other diseases.

Sequence 121 AA;

Query Match 96.4%; Score 133; DB 17; Length 121;

Best Local Similarity 96.2%; Pred. No. 3.3e-13;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

1 CNDEGLESVPTESNITWQIMRIKPH 26

61 CNDEGLECVPTESNITWQIMRIKPH 86

Search completed: January 30, 2004, 11:40:08

Job time : 36.725 secs



GenCore version 5.1.6  
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OM protein - protein search, using SW model

Run on: January 30, 2004, 11:35:33 ; Search time 11.0667 seconds  
(without alignments)  
99.405 Million cell updates/sec

Title: US-09-266-543-7

Perfect score: 138

Sequence: 1 CNDGSLSEVPTESNITWQIMRIKPH 26

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 328717 seqs, 42310858 residues

Total number of hits satisfying chosen parameters: 328717

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents, AA:\*  
1: /cgn2\_6/ptodata/1/1aa/5A\_COMB.pep:\*  
2: /cgn2\_6/ptodata/1/1aa/5B\_COMB.pep:\*  
3: /cgn2\_6/ptodata/1/1aa/6A\_COMB.pep:\*  
4: /cgn2\_6/ptodata/1/1aa/6B\_COMB.pep:\*  
5: /cgn2\_6/ptodata/1/1aa/6C\_COMB.pep:\*  
6: /cgn2\_6/ptodata/1/1aa/backfile1.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	133	96.4	109	US-08-691-794-3	Sequence 3, Appl1
2	133	96.4	110	US-09-392-932-11	Sequence 11, Appl1
3	133	96.4	110	US-09-574-708A-11	Sequence 11, Appl1
4	133	96.4	110	US-09-822-270-17	Sequence 17, Appl1
5	133	96.4	121	US-09-519-476-2	Sequence 2, Appl1
6	133	96.4	121	US-09-519-476-2	Sequence 2, Appl1
7	133	96.4	136	US-09-037-983C-15	Sequence 15, Appl1
8	133	96.4	137	US-09-037-983C-17	Sequence 17, Appl1
9	133	96.4	138	US-09-037-983C-16	Sequence 16, Appl1
10	133	96.4	141	US-09-519-476-2	Sequence 2, Appl1
11	133	96.4	145	US-08-784-551C-2	Sequence 2, Appl1
12	133	96.4	145	US-09-392-932-2	Sequence 2, Appl1
13	133	96.4	145	US-09-574-708A-4	Sequence 4, Appl1
14	133	96.4	145	US-09-037-983C-2	Sequence 2, Appl1
15	133	96.4	147	US-08-807-992B-1	Sequence 1, Appl1
16	133	96.4	147	US-09-392-932-1	Sequence 1, Appl1
17	133	96.4	147	US-08-706-054A-4	Sequence 4, Appl1
18	133	96.4	147	US-09-574-708A-2	Sequence 2, Appl1
19	133	96.4	147	US-09-313-299-4	Sequence 4, Appl1
20	133	96.4	164	US-09-244-583-24	Sequence 24, Appl1
21	133	96.4	165	US-08-882-816-3	Sequence 3, Appl1
22	133	96.4	165	US-08-802-052B-3	Sequence 3, Appl1
23	133	96.4	165	US-08-802-052B-3	Sequence 3, Appl1
24	133	96.4	165	US-08-802-052B-3	Sequence 3, Appl1
25	133	96.4	165	US-08-802-052B-3	Sequence 3, Appl1
26	133	96.4	188	US-09-244-583-28	Sequence 28, Appl1
27	133	96.4	191	US-08-567-200A-2	Sequence 2, Appl1

28	133	96.4	191	US-08-691-794-2	Sequence 2, Appl1
29	133	96.4	191	US-08-795-430-56	Sequence 56, Appl1
30	133	96.4	191	US-09-392-932-3	Sequence 3, Appl1
31	133	96.4	191	US-09-355-760-56	Sequence 56, Appl1
32	133	96.4	191	US-08-882-816-2	Sequence 2, Appl1
33	133	96.4	191	US-09-574-708A-6	Sequence 6, Appl1
34	133	96.4	191	US-08-802-052B-2	Sequence 2, Appl1
35	133	96.4	191	US-08-802-052B-2	Sequence 2, Appl1
36	133	96.4	208	US-09-244-583-26	Sequence 26, Appl1
37	133	96.4	213	US-09-574-708A-8	Sequence 8, Appl1
38	133	96.4	214	US-08-807-992B-3	Sequence 3, Appl1
39	133	96.4	215	US-08-586-039B-49	Sequence 49, Appl1
40	133	96.4	215	US-09-699-769-49	Sequence 49, Appl1
41	133	96.4	215	US-08-882-816-3	Sequence 3, Appl1
42	133	96.4	231	PCT-US96-09001-10	Sequence 10, Appl1
43	133	96.4	232	US-08-999-811-7	Sequence 7, Appl1
44	133	96.4	232	US-08-824-996-9	Sequence 9, Appl1
45	133	96.4	232	US-08-824-996-9	Sequence 9, Appl1

## ALIGNMENTS

RESULT 1  
US-08-691-794-3  
; Sequence 3, Application US/08691794  
; Patent No. 6057428  
; GENERAL INFORMATION:  
; APPLICANT: Keyt, Bruce A.  
; APPLICANT: Nguyen, Francis H.  
; APPLICANT: Ferrara, Napoleone  
; APPLICANT: Cunningham, Brian C.  
; APPLICANT: Wells, James A.  
; TITLE OF INVENTION: Variants of Vascular Endothelial Cell  
; TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their  
; NUMBER OF SEQUENCES: 45  
; CORRESPONDENCE ADDRESS:  
; ADDRESS: Flehr, Hohbach, Teet, Albritton & Herbert  
; STREET: Four Embarcadero Center, Suite 3400  
; CITY: San Francisco  
; STATE: California  
; COUNTRY: United States  
; ZIP: 94111-4187  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patentin Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/691,794  
; FILING DATE: 02-AUG-1996  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 60/002,827  
; FILING DATE: 25-AUG-1995  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/567,200  
; FILING DATE: 05-DEC-1995  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Dreger, Walter H.  
; REGISTRATION NUMBER: 24,190  
; REFERENCE/DOCKET NUMBER: A-63758/WHD  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 781-1989  
; TELEFAX: (415) 398-3249  
; TELEX: 910 277299  
; INFORMATION FOR SEQ ID NO: 3:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 109 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: unknown

TOPOLOGY: unknown  
MOLECULE TYPE: protein  
US-08-691-794-3

Query Match 96.4%; Score 133; DB 3; Length 109;  
Best Local Similarity 96.2%; Pred. No. 9.9e-15;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITWQIMRIKPH 26  
DB 61 CNDGLECVPTESNITWQIMRIKPH 86

## RESULT 2

US-09-392-932-11  
Sequence 11, Application US/09392932

Patent No. 6352975  
GENERAL INFORMATION:  
APPLICANT: Schreiner, George F.  
APPLICANT: Johnson, Richard J.  
TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND  
FILE REFERENCE: SCIOS.002A  
CURRENT APPLICATION NUMBER: US/09/392,932  
CURRENT FILING DATE: 1999-09-09  
EARLIER APPLICATION NUMBER: 60/099,694  
PRIOR FILING DATE: 1998-09-09  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 11  
LENGTH: 110  
TYPE: PRT  
ORGANISM: Homo Sapiens  
US-09-392-932-11

Query Match 96.4%; Score 133; DB 4; Length 110;  
Best Local Similarity 96.2%; Pred. No. 9.9e-15;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITWQIMRIKPH 26  
DB 61 CNDGLECVPTESNITWQIMRIKPH 86

## RESULT 3

US-09-574-708A-11  
Sequence 11, Application US/09574708A

Patent No. 6475796  
GENERAL INFORMATION:  
APPLICANT: N. Stephen Pollitt  
APPLICANT: Judith A. Abraham  
TITLE OF INVENTION: Vascular endothelial growth factor  
FILE REFERENCE: SCIOS004A  
CURRENT APPLICATION NUMBER: US/09/574,708A  
CURRENT FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/135,312  
PRIOR FILING DATE: 1999-05-20  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 11  
LENGTH: 110  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-574-708A-11

Query Match 96.4%; Score 133; DB 4; Length 110;  
Best Local Similarity 96.2%; Pred. No. 9.9e-15;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITWQIMRIKPH 26  
DB 61 CNDGLECVPTESNITWQIMRIKPH 86

## RESULT 4

US-09-822-270-17  
Sequence 17, Application US/09822270

Patent No. 6559126  
GENERAL INFORMATION:  
APPLICANT: TOURNAIRE, ROSELYNE  
APPLICANT: DEMANGEL, CAROLINE  
APPLICANT: DERBIN, CLAUDE  
APPLICANT: PERRET, GERARD  
APPLICANT: MAZIE, JEAN-CLAUDE  
APPLICANT: PLOUET, JEAN  
APPLICANT: VASSAY, ROGER  
TITLE OF INVENTION: PEPTIDES BLOCKING VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF)-MEDIA  
FILE REFERENCE: 205060US0  
CURRENT APPLICATION NUMBER: US/09/822,270  
CURRENT FILING DATE: 2001-04-02  
PRIOR APPLICATION NUMBER: US 60/193,396  
PRIOR FILING DATE: 2000-03-31  
NUMBER OF SEQ ID NOS: 17  
SOFTWARE: PatentIn version 3.1  
SEQ ID NO 17  
LENGTH: 110  
TYPE: PRT  
ORGANISM: ARTIFICIAL SEQUENCE  
FEATURE:  
OTHER INFORMATION: SYNTHETIC PEPTIDE  
US-09-822-270-17

Query Match 96.4%; Score 133; DB 4; Length 110;  
Best Local Similarity 96.2%; Pred. No. 9.9e-15;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITWQIMRIKPH 26  
DB 61 CNDGLECVPTESNITWQIMRIKPH 86

## RESULT 5

5194596-19

Patent No. 5194596  
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN  
C.; MITCHELL, RICHARD L.  
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL  
GROWTH FACTOR  
NUMBER OF SEQUENCES: 32  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/450,883  
FILING DATE: 14-DEC-1989  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 387,545  
FILING DATE: 27-JUL-1989  
SEQ ID NO: 19  
LENGTH: 121  
5194596-19

Query Match 96.4%; Score 133; DB 6; Length 121;  
Best Local Similarity 96.2%; Pred. No. 1.1e-14;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITWQIMRIKPH 26  
DB 61 CNDGLECVPTESNITWQIMRIKPH 86

## RESULT 6

5219739-20

Patent No. 5219739  
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,  
JOHN C.; MITCHELL, RICHARD L.  
TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESF120 AND

```
;HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
;VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGF120 AND HVEGF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:20:
; LENGTH: 121
5219739-20

Query Match          96.4%; Score 133; DB 6; Length 121;
Best Local Similarity 96.2%; Pred.No.1.1e-14;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEESNITWQIMRIKPH 26
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Db 61 CNDGLECPTEESNITWQIMRIKPH 86

RESULT 7
; Sequence 15, Application US/09037983C
; Patent No. 6583276
; GENERAL INFORMATION:
; APPLICANT: Newfield, Gera
; APPLICANT: Keshet, Eli
; APPLICANT: Vlodavsky, Israel
; TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease
; FILE REFERENCE: 000274-00009
; CURRENT APPLICATION NUMBER: US/09/037,983C
; CURRENT FILING DATE: 1998-03-11
; PRIOR APPLICATION NUMBER: 60/025,537
; PRIOR FILING DATE: 1996-09-06
; NUMBER OF SEQ ID NOS: 17
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 15
; LENGTH: 136
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-037-983C-15

Query Match          96.4%; Score 133; DB 4; Length 136;
Best Local Similarity 96.2%; Pred.No.1.3e-14;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEESNITWQIMRIKPH 26
    ||||| ||||| ||||| ||||| |||||
Db 61 CNDGLECPTEESNITWQIMRIKPH 86

RESULT 8
; Sequence 17, Application US/09037983C
; Patent No. 6583276
; GENERAL INFORMATION:
; APPLICANT: Newfield, Gera
; APPLICANT: Keshet, Eli
; APPLICANT: Vlodavsky, Israel
; APPLICANT: Poltorak, Zoya
; TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease
; FILE REFERENCE: 000274-00009
; CURRENT APPLICATION NUMBER: US/09/037,983C
; CURRENT FILING DATE: 1998-03-11
; PRIOR APPLICATION NUMBER: 60/025,537
; PRIOR FILING DATE: 1996-09-06
; NUMBER OF SEQ ID NOS: 17
; SOFTWARE: PatentIn version 3.1
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; SEQ ID NO 17
; LENGTH: 137
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-037-983C-17

Query Match          96.4%; Score 133; DB 4; Length 137;
Best Local Similarity 96.2%; Pred.No.1.3e-14;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEESNITWQIMRIKPH 26
    ||||| ||||| ||||| ||||| |||||
Db 61 CNDGLECPTEESNITWQIMRIKPH 86

RESULT 9
; Sequence 16, Application US/09037983C
; Patent No. 6583276
; GENERAL INFORMATION:
; APPLICANT: Newfield, Gera
; APPLICANT: Keshet, Eli
; APPLICANT: Vlodavsky, Israel
; APPLICANT: Poltorak, Zoya
; TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease
; FILE REFERENCE: 000274-00009
; CURRENT APPLICATION NUMBER: US/09/037,983C
; CURRENT FILING DATE: 1998-03-11
; PRIOR APPLICATION NUMBER: 60/025,537
; PRIOR FILING DATE: 1996-09-06
; NUMBER OF SEQ ID NOS: 17
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 16
; LENGTH: 138
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-037-983C-16

Query Match          96.4%; Score 133; DB 4; Length 138;
Best Local Similarity 96.2%; Pred.No.1.3e-14;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEESNITWQIMRIKPH 26
    ||||| ||||| ||||| ||||| |||||
Db 61 CNDGLECPTEESNITWQIMRIKPH 86

RESULT 10
; Sequence 2, Application US/09519476
; Patent No. 6506884
; GENERAL INFORMATION:
; APPLICANT: MINTZ, Liat et al.
; TITLE OF INVENTION: NOVEL NUCLEIC ACID AND AMINO ACID SEQUENCES
; FILE REFERENCE: 2786-0149P
; CURRENT APPLICATION NUMBER: US/09/519,476
; CURRENT FILING DATE: 2000-03-08
; PRIOR APPLICATION NUMBER: IL128852
; PRIOR FILING DATE: 1999-03-05
; NUMBER OF SEQ ID NOS: 2
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 2
; LENGTH: 141
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-519-476-2

Query Match          96.4%; Score 133; DB 4; Length 141;
Best Local Similarity 96.2%; Pred.No.1.4e-14;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEESNITWQIMRIKPH 26
    ||||| ||||| ||||| ||||| |||||
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Db 87 CNDGELCVPTEESNITWQIMRIKPH 112

RESULT 11

US-08-784-551C-2

Sequence 2, Application US/08784551C

Patent No. 6013780

GENERAL INFORMATION:

APPLICANT: Gera Neufeld

APPLICANT: Eli Keshet

APPLICANT: Israel Vlodavsky

APPLICANT: Zoya Poltorak

TITLE OF INVENTION: ANGIOGENIC FACTOR AND USE THEREOF

TITLE OF INVENTION: IN TREATING CARDIOVASCULAR DISEASE

NUMBER OF SEQUENCES: 9

CORRESPONDENCE ADDRESS:

ADDRESSEE: Blank, Rome, Comisky & McCauley LLP

STREET: 900 17th Street, N.W.

CITY: Washington, D.C.

STATE: N/A

COUNTRY: U.S.A.

ZIP: 20006

COMPUTER READABLE FORM:

MEDIUM TYPE: 3.5" Diskette, 1.44 Mb

MEDIUM TYPE: Storage

COMPUTER: IBM Compatible

OPERATING SYSTEM: IBM P.C. DOS 5.0

SOFTWARE: FASTSEQ for Windows 2.0

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/784,551C

FILING DATE: January 21, 1997

CLASSIFICATION: 514

PRIOR APPLICATION DATA:

APPLICATION NUMBER:

FILING DATE:

ATTORNEY/AGENT INFORMATION:

NAME: Cohen, Herbert

REGISTRATION NUMBER: 25,109

REFERENCE/DOCKET NUMBER: 0274.005/P003

TELECOMMUNICATION INFORMATION:

TELEPHONE: (202) 463-7700

TELEFAX: (202) 463-6915

TELEX:

INFORMATION FOR SEQ ID NO: 2:

SEQUENCE CHARACTERISTICS:

LENGTH: 145 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

US-08-784-551C-2

Query Match 96.4%; Score 133; DB 3; Length 145;

Best Local Similarity 96.2%; Pred. No. 1.4e-14;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGELSVPTRESNITWQIMRIKPH 26

Db 61 CNDGELCVPTEESNITWQIMRIKPH 86

RESULT 12

US-09-392-932-2

Sequence 2, Application US/09392932

Patent No. 6352975

GENERAL INFORMATION:

APPLICANT: Schreiner, George F.

APPLICANT: Johnson, Richard J.

TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND

TITLE OF INVENTION: COMPOSITIONS FOR USE THEREIN

FILE REFERENCE: SCIOS.002A

CURRENT APPLICATION NUMBER: US/09/392,932

CURRENT FILING DATE: 1999-09-09

EARLIER APPLICATION NUMBER: 60/099,694

EARLIER FILING DATE: 1998-09-09

NUMBER OF SEQ ID NOS: 11

SOFTWARE: FASTSEQ for Windows Version 4.0

SEQ ID NO 2

LENGTH: 145

TYPE: PRT

ORGANISM: Homo Sapiens

US-09-392-932-2

Query Match 96.4%; Score 133; DB 4; Length 145;

Best Local Similarity 96.2%; Pred. No. 1.4e-14;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGELSVPTRESNITWQIMRIKPH 26

Db 61 CNDGELCVPTEESNITWQIMRIKPH 86

RESULT 13

US-09-574-708A-4

Sequence 4, Application US/09574708A

Patent No. 6475796

GENERAL INFORMATION:

APPLICANT: N. Stephen Pollitt

APPLICANT: Judith A. Abraham

TITLE OF INVENTION: Vascular endothelial growth factor

TITLE OF INVENTION: variants

FILE REFERENCE: SCIOS004A

CURRENT APPLICATION NUMBER: US/09/574,708A

CURRENT FILING DATE: 2000-05-18

PRIOR APPLICATION NUMBER: US 60/135,112

PRIOR FILING DATE: 1999-05-20

NUMBER OF SEQ ID NOS: 11

SOFTWARE: FASTSEQ for Windows Version 4.0

SEQ ID NO 4

LENGTH: 145

TYPE: PRT

ORGANISM: Homo sapiens

US-09-574-708A-4

Query Match 96.4%; Score 133; DB 4; Length 145;

Best Local Similarity 96.2%; Pred. No. 1.4e-14;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGELSVPTRESNITWQIMRIKPH 26

Db 61 CNDGELCVPTEESNITWQIMRIKPH 86

RESULT 14

US-09-037-983C-2

Sequence 2, Application US/09037983C

Patent No. 6583276

GENERAL INFORMATION:

APPLICANT: Neufeld, Gera

APPLICANT: Keshet, Eli

APPLICANT: Vlodavsky, Israel

APPLICANT: Poltorak, Zoya

TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Dise

FILE REFERENCE: 000274-00009

CURRENT APPLICATION NUMBER: US/09/037,983C

CURRENT FILING DATE: 1998-03-11

PRIOR APPLICATION NUMBER: 60/025,537

PRIOR FILING DATE: 1996-09-06

NUMBER OF SEQ ID NOS: 17

SOFTWARE: PatentIn version 3.1

SEQ ID NO 2

LENGTH: 145

TYPE: PRT

ORGANISM: Homo sapiens

US-09-037-983C-2

Query Match 96.4%; Score 133; DB 4; Length 145;  
 Best Local Similarity 96.2%; Pred. No. 1.4e-14;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEBSNITWQIMRIKPH 26  
 Db 61 CNDGLECCVPTESNITWQIMRIKPH 86

RESULT 15

US-08-807-992B-1  
 ; Sequence 1, Application US/08807992B  
 ; Patent No. 6022541

GENERAL INFORMATION:

APPLICANT: Senger, Donald R  
 TITLE OF INVENTION: Immunological preparation for concurrent  
 TITLE OF INVENTION: specific binding to spatially exposed regions of vascular  
 TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood  
 NUMBER OF SEQUENCES: 31  
 CORRESPONDENCE ADDRESS:  
 ADDRESSEE: David Prashker, Esq.  
 STREET: P.O. Box 5387  
 CITY: Magnolia  
 STATE: Massachusetts  
 COUNTRY: USA  
 ZIP: 01930

COMPUTER READABLE FORM:  
 MEDIUM TYPE: Diskette, 3.50 inch, 1.40 MB storage  
 COMPUTER: IBM PS/1  
 OPERATING SYSTEM: MS DOS  
 SOFTWARE: WordPerfect version 5.1

CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/08/807,992B  
 FILING DATE: March 3, 1997  
 CLASSIFICATION: 424

ATTORNEY/AGENT INFORMATION:

NAME: David Prashker, Esq.  
 REGISTRATION NUMBER: 29,693  
 REFERENCE/DOCKET NUMBER: BIS-033  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: (978) 525-3794  
 INFORMATION FOR SEQ ID NO: 1:  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 147 amino acids  
 TYPE: amino acid  
 STRANDEDNESS: single  
 TOPOLOGY: linear

US-08-807-992B-1

Query Match 96.4%; Score 133; DB 3; Length 147;  
 Best Local Similarity 96.2%; Pred. No. 1.4e-14;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEBSNITWQIMRIKPH 26  
 Db 87 CNDGLECCVPTESNITWQIMRIKPH 112

Search completed: January 30, 2004, 11:47:52  
 Job time : 11.0667 secs



GenCore version 5.1.6  
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## OM protein - protein search, using sw model

Run on: January 30, 2004, 11:44:49 ; Search time 25.7333 Seconds  
(without alignments)  
209.978 Million cell updates/sec

Title: US-09-266-543-7  
Perfect score: 138  
Sequence: 1 CNDGLSEVPTESNITQIMRIKPH 26

Scoring table:  
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Gapop 10.0 , Gapext 0.5

Searched: 789580 seqs, 207824079 residues

Total number of hits satisfying chosen parameters: 789580

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

## Database :

Published Applications AA:\*

- 1: /cgn2\_6/ptodata/2/pubpaa/US07\_PUBCOMB.pep:\*
- 2: /cgn2\_6/ptodata/2/pubpaa/PCT\_NEW\_PUB.pep:\*
- 3: /cgn2\_6/ptodata/2/pubpaa/US06\_NEW\_PUB.pep:\*
- 4: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep:\*
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- 11: /cgn2\_6/ptodata/2/pubpaa/US09C\_PUBCOMB.pep:\*
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- 13: /cgn2\_6/ptodata/2/pubpaa/US10\_PUBCOMB.pep:\*
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- 15: /cgn2\_6/ptodata/2/pubpaa/US10C\_PUBCOMB.pep:\*
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- 18: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	133	96.4	47	US-10-139-876-13	Sequence 13, Appl
2	133	96.4	79	US-10-086-623-14	Sequence 14, Appl
3	133	96.4	79	US-10-260-539-14	Sequence 14, Appl
4	133	96.4	101	US-09-832-355A-2	Sequence 2, Appl
5	133	96.4	105	US-09-925-298-927	Sequence 927, Appl
6	133	96.4	105	US-09-795-006A-51	Sequence 51, Appl
7	133	96.4	105	US-09-795-006A-59	Sequence 59, Appl
8	133	96.4	105	US-09-925-298-927	Sequence 927, Appl
9	133	96.4	110	US-09-822-270-17	Sequence 17, Appl
10	133	96.4	110	US-10-342-371-17	Sequence 17, Appl
11	133	96.4	110	US-10-392-931-10	Sequence 10, Appl
12	133	96.4	110	US-10-392-931-11	Sequence 11, Appl
13	133	96.4	110	US-10-418-529-10	Sequence 10, Appl
14	133	96.4	110	US-10-418-529-11	Sequence 11, Appl
15	133	96.4	110	US-10-083-817-11	Sequence 11, Appl

16	133	96.4	110	15	US-10-268-447-11	Sequence 11, Appl
17	133	96.4	121	11	US-09-832-355A-1	Sequence 1, Appl
18	133	96.4	126	10	US-09-795-006A-43	Sequence 43, Appl
19	133	96.4	127	10	US-09-795-006A-47	Sequence 47, Appl
20	133	96.4	127	10	US-09-795-006A-83	Sequence 83, Appl
21	133	96.4	127	10	US-09-795-006A-91	Sequence 91, Appl
22	133	96.4	141	15	US-10-298-794-2	Sequence 2, Appl
23	133	96.4	141	12	US-10-319-828-2	Sequence 2, Appl
24	133	96.4	145	12	US-10-392-931-4	Sequence 4, Appl
25	133	96.4	145	12	US-10-418-529-4	Sequence 4, Appl
26	133	96.4	145	14	US-10-083-817-2	Sequence 2, Appl
27	133	96.4	145	15	US-10-268-447-4	Sequence 4, Appl
28	133	96.4	147	12	US-10-346-802-4	Sequence 4, Appl
29	133	96.4	147	12	US-10-392-931-2	Sequence 2, Appl
30	133	96.4	147	12	US-10-418-529-2	Sequence 2, Appl
31	133	96.4	147	14	US-10-083-817-1	Sequence 1, Appl
32	133	96.4	147	15	US-10-268-447-2	Sequence 2, Appl
33	133	96.4	150	11	US-09-832-355A-61	Sequence 61, Appl
34	133	96.4	154	11	US-09-832-355A-59	Sequence 59, Appl
35	133	96.4	154	11	US-09-832-355A-62	Sequence 62, Appl
36	133	96.4	162	11	US-09-832-355A-60	Sequence 60, Appl
37	133	96.4	164	12	US-10-293-157-24	Sequence 24, Appl
38	133	96.4	165	12	US-10-318-302-1	Sequence 1, Appl
39	133	96.4	165	15	US-10-200-050-3	Sequence 3, Appl
40	133	96.4	171	9	US-09-812-133-2	Sequence 2, Appl
41	133	96.4	188	12	US-10-293-157-28	Sequence 28, Appl
42	133	96.4	190	10	US-09-813-198-8	Sequence 8, Appl
43	133	96.4	191	9	US-09-349-954A-2	Sequence 2, Appl
44	133	96.4	191	10	US-09-932-451A-2	Sequence 2, Appl
45	133	96.4	191	10	US-09-907-007-2	Sequence 2, Appl

## ALIGNMENTS

RESULT 1  
US-10-139-876-13  
Sequence 13, Application US/101339876  
Publication No. US20020123461A1  
GENERAL INFORMATION:  
APPLICANT: Oliviero, Salvatore  
TITLE OF INVENTION: C-Fos induced Growth Factor (Ftgf) And Dna Encoding Same  
FILE REFERENCE: 35784/205172  
CURRENT APPLICATION NUMBER: US/10/139,876  
CURRENT FILING DATE: 2002-05-07  
PRIOR APPLICATION NUMBER: 09/043,476  
PRIOR FILING DATE: 1998-03-18  
PRIOR APPLICATION NUMBER: PCT/IB96/0113  
PRIOR FILING DATE: 1996-09-30  
PRIOR APPLICATION NUMBER: GB9612368.2  
PRIOR FILING DATE: 1996-06-13  
PRIOR APPLICATION NUMBER: GB9519928.7  
PRIOR FILING DATE: 1995-09-29  
NUMBER OF SEQ ID NOS: 20  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 13  
LENGTH: 47  
TYPE: PRT  
ORGANISM: unknown  
FEATURE:  
OTHER INFORMATION: mammalian  
FEATURE:  
NAME/KEY: PEPTIDE  
LOCATION: (1)...(47)  
OTHER INFORMATION: segment of VEGF  
US-10-139-876-13

Query Match 96.4% Score 133; DB 14; Length 47;  
Best Local Similarity 96.4%; Pred. No. 1.2e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
1 CNDGLSEVPTESNITQIMRIKPH 26  
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Db 1 CNDEGLBCVPTESNITMQRKPH 26

# RESULT 2

US-10-086-623-14  
Sequence 14, Application US/10086623  
Publication No. US20020164710A1

## GENERAL INFORMATION:

APPLICANT: ERIKSSON, Ulf  
APPLICANT: AASE, Karin  
APPLICANT: LI, Xuri  
APPLICANT: PONTEN, Annica  
APPLICANT: TUTELA, Marko  
APPLICANT: ALITALO, Kari  
APPLICANT: OESTMAN, Arne  
APPLICANT: HEIDIN, Carl-Henrik

TITLE OF INVENTION: PLATELET DERIVED GROWTH FACTOR D, DNA CODING THEREFOR AND USES TH

FILE REFERENCE: 1064/44833C2

CURRENT FILING DATE: 2000-03-04

PRIOR APPLICATION NUMBER: US 60/107,852

PRIOR FILING DATE: 1998-11-10

PRIOR APPLICATION NUMBER: US 60/113,997

PRIOR FILING DATE: 1998-12-28

PRIOR APPLICATION NUMBER: US 60/150,604

PRIOR FILING DATE: 1999-08-26

PRIOR APPLICATION NUMBER: US 60/157,108

PRIOR FILING DATE: 1999-10-04

PRIOR APPLICATION NUMBER: US 60/157,756

PRIOR FILING DATE: 1999-10-05

PRIOR APPLICATION NUMBER: US 09/438,046

PRIOR FILING DATE: 1999-11-10

PRIOR APPLICATION NUMBER: US 09/691,200

PRIOR FILING DATE: 2000-10-19

NUMBER OF SEQ ID NOS: 42

SOFTWARE: PatentIn version 3.1

SEQ ID NO 14

LENGTH: 79

TYPE: PRT

ORGANISM: Homo sapiens

FEATURE:

NAME/KEY: misc.feature

OTHER INFORMATION: PDGF/VEGF-homology domain of VEGF-165

US-10-086-623-14

Query Match 96.4%; Score 133; DB 14; Length 79;

Best Local Similarity 96.2%; Pred. No. 2,3e-13;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

1 CNDEGLBCVPTESNITMQRKPH 26

36 CNDEGLBCVPTESNITMQRKPH 61

Db

# RESULT 3

US-10-260-539-14

Sequence 14, Application US/10260539

Publication No. US20030073637A1

GENERAL INFORMATION:

APPLICANT: ERIKSSON, Ulf

APPLICANT: AASE, Karin

APPLICANT: LI, Xuri

APPLICANT: PONTEN, Annica

APPLICANT: TUTELA, Marko

APPLICANT: ALITALO, Kari

APPLICANT: OESTMAN, Arne

APPLICANT: HEIDIN, Carl-Henrik

TITLE OF INVENTION: PLATELET DERIVED GROWTH FACTOR D, DNA CODING THEREFOR AND USES TH

FILE REFERENCE: 1064/44833C2

CURRENT FILING DATE: 2002-10-01

CURRENT APPLICATION NUMBER: US/10/260,539

PRIOR FILING DATE: 2000-03-04

PRIOR APPLICATION NUMBER: US/10/086,623

PRIOR FILING DATE: 2000-03-04

PRIOR APPLICATION NUMBER: US/10/086,623

PRIOR APPLICATION NUMBER: US 60/107,852

PRIOR FILING DATE: 1998-11-10

PRIOR APPLICATION NUMBER: US 60/113,997

PRIOR FILING DATE: 1998-12-28

PRIOR APPLICATION NUMBER: US 60/150,604

PRIOR FILING DATE: 1999-08-26

PRIOR APPLICATION NUMBER: US 60/157,108

PRIOR FILING DATE: 1999-10-04

PRIOR APPLICATION NUMBER: US 60/157,756

PRIOR FILING DATE: 1999-10-05

PRIOR APPLICATION NUMBER: US 09/438,046

PRIOR FILING DATE: 1999-11-10

PRIOR APPLICATION NUMBER: US 09/691,200

PRIOR FILING DATE: 2000-10-19

NUMBER OF SEQ ID NOS: 42

SOFTWARE: PatentIn version 3.1

SEQ ID NO 14

LENGTH: 79

TYPE: PRT

ORGANISM: Homo sapiens

FEATURE:

NAME/KEY: misc.feature

OTHER INFORMATION: PDGF/VEGF-homology domain of VEGF-165

US-10-260-539-14

Query Match 96.4%; Score 133; DB 15; Length 79;

Best Local Similarity 96.2%; Pred. No. 2,3e-13;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

1 CNDEGLBCVPTESNITMQRKPH 26

36 CNDEGLBCVPTESNITMQRKPH 61

Db

# RESULT 4

US-09-832-355A-2

Sequence 2, Application US/09832355A

Publication No. US20030027751A1

GENERAL INFORMATION:

APPLICANT: Kovacs, Imre

APPLICANT: Kessler, Paul

TITLE OF INVENTION: VEGF FUSION PROTEINS

FILE REFERENCE: 205654

CURRENT APPLICATION NUMBER: US/09/832,355A

CURRENT FILING DATE: 2001-04-10

NUMBER OF SEQ ID NOS: 126

SOFTWARE: PatentIn version 3.0

SEQ ID NO 2

LENGTH: 101

TYPE: PRT

ORGANISM: Homo sapiens

US-09-832-355A-2

Query Match 96.4%; Score 133; DB 11; Length 101;

Best Local Similarity 96.2%; Pred. No. 3,1e-13;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

1 CNDEGLBCVPTESNITMQRKPH 26

53 CNDEGLBCVPTESNITMQRKPH 78

Db

# RESULT 5

US-09-925-299-927

Sequence 927, Application US/09925299

Patent No. US20020055627A1

GENERAL INFORMATION:

APPLICANT: Rosen et al.

TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies

FILE REFERENCE: PA102

CURRENT APPLICATION NUMBER: US/09/925,299

CURRENT FILING DATE: 2001-08-10

PRIOR APPLICATION NUMBER: PCT/US00/05883



;; PRIOR FILING DATE: 2000-03-08  
;; PRIOR APPLICATION NUMBER: 60/124,270  
;; PRIOR FILING DATE: 1999-03-12  
;; NUMBER OF SEQ ID NOS: 1556  
;; SOFTWARE: PatentIn Ver. 2.0  
;; SEQ ID NO 927  
;; LENGTH: 105  
;; TYPE: PRT  
;; ORGANISM: Homo sapiens  
US-09-925-299-927

Query Match 96.4%; Score 133; DB 9; Length 105;  
Best Local Similarity 96.2%; Pred. No. 3.3e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTESNITWQIMRIKPH 26  
|||  
Db 45 CNDGLECPVTEESNITWQIMRIKPH 70  
|||

RESULT 6  
US-09-795-006A-51  
; Sequence 51, Application US/09795006A  
; Patent No. US20020151680A1  
; GENERAL INFORMATION:  
; APPLICANT: Alltalo et al  
; TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR  
; FILE REFERENCE: 28967/35977B  
; CURRENT APPLICATION NUMBER: US/09/795,006A  
; PRIOR FILING DATE: 2001-02-26  
; PRIOR APPLICATION NUMBER: US 60/205,331  
; PRIOR FILING DATE: 2000-05-18  
; PRIOR APPLICATION NUMBER: US 60/185,205  
; PRIOR FILING DATE: 2000-02-25  
; NUMBER OF SEQ ID NOS: 175  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 51  
; LENGTH: 105  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: Description of Artificial Sequence: amino acid sequence of hybrid  
US-09-795-006A-51

Query Match 96.4%; Score 133; DB 10; Length 105;  
Best Local Similarity 96.2%; Pred. No. 3.3e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTESNITWQIMRIKPH 26  
|||  
Db 54 CNDGLECPVTEESNITWQIMRIKPH 79  
|||

RESULT 7  
US-09-795-006A-59  
; Sequence 59, Application US/09795006A  
; Patent No. US20020151680A1  
; GENERAL INFORMATION:  
; APPLICANT: Alltalo et al  
; TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR  
; FILE REFERENCE: 28967/35977B  
; CURRENT APPLICATION NUMBER: US/09/795,006A  
; PRIOR FILING DATE: 2001-02-26  
; PRIOR APPLICATION NUMBER: US 60/205,331  
; PRIOR FILING DATE: 2000-05-18  
; PRIOR APPLICATION NUMBER: US 60/185,205  
; PRIOR FILING DATE: 2000-02-25  
; NUMBER OF SEQ ID NOS: 175  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 59  
; LENGTH: 105

;; TYPE: PRT  
;; ORGANISM: Artificial Sequence  
;; FEATURE:  
;; OTHER INFORMATION: Description of Artificial Sequence: amino acid sequence of hybrid  
US-09-795-006A-59

Query Match 96.4%; Score 133; DB 10; Length 105;  
Best Local Similarity 96.2%; Pred. No. 3.3e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTESNITWQIMRIKPH 26  
|||  
Db 54 CNDGLECPVTEESNITWQIMRIKPH 79  
|||

RESULT 8  
US-09-925-299-927  
; Sequence 927, Application US/09925299  
; Publication No. US20030040617A9  
; GENERAL INFORMATION:  
; APPLICANT: Rosen et al  
; TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies  
; FILE REFERENCE: PA102  
; CURRENT APPLICATION NUMBER: US/09/925,299  
; PRIOR FILING DATE: 2001-08-10  
; PRIOR APPLICATION NUMBER: PCT/US00/05883  
; PRIOR FILING DATE: 2000-03-08  
; PRIOR APPLICATION NUMBER: 60/124,270  
; PRIOR FILING DATE: 1999-03-12  
; NUMBER OF SEQ ID NOS: 1556  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 927  
; LENGTH: 105  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-09-925-299-927

Query Match 96.4%; Score 133; DB 11; Length 105;  
Best Local Similarity 96.2%; Pred. No. 3.3e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTESNITWQIMRIKPH 26  
|||  
Db 45 CNDGLECPVTEESNITWQIMRIKPH 70  
|||

RESULT 9  
US-09-822-270-17  
; Sequence 17, Application US/09822270  
; Patent No. US20020068697A1  
; GENERAL INFORMATION:  
; APPLICANT: TOURNIAIRE, ROSELYNE  
; APPLICANT: DEMANGEL, CAROLINE  
; APPLICANT: DERBIN, CLAUDE  
; APPLICANT: PERRET, GERARD  
; APPLICANT: MAZIE, JEAN-CLAUDE  
; APPLICANT: PLOUET, JEAN  
; APPLICANT: VASSAY, ROGER  
; TITLE OF INVENTION: PEPTIDES BLOCKING VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF)-MEDIA  
; FILE REFERENCE: 205060US0  
; CURRENT APPLICATION NUMBER: US/09/822,270  
; PRIOR FILING DATE: 2001-04-02  
; PRIOR APPLICATION NUMBER: US 60/193,396  
; PRIOR FILING DATE: 2000-03-31  
; NUMBER OF SEQ ID NOS: 17  
; SOFTWARE: PatentIn version 3.1  
; SEQ ID NO 17  
; LENGTH: 110  
; TYPE: PRT  
; ORGANISM: ARTIFICIAL SEQUENCE  
; FEATURE:  
; OTHER INFORMATION: SYNTHETIC PEPTIDE

US-09-822-270-17

Query Match 96.4%; Score 133; DB 9; Length 110;  
Best Local Similarity 96.2%; Pred. No. 3.5e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEESNITMQIMRIKPH 26  
|||||  
Db 61 CNDGLECVPTESNITMQIMRIKPH 86

RESULT 10

US-10-342-371-17  
; Sequence 17, Application US/10342371  
; Publication No. US20030171289A1  
; GENERAL INFORMATION:  
; APPLICANT: TOURNAIRE, ROSELYNE  
; APPLICANT: DEMANGEL, CAROLINE  
; APPLICANT: DERBIN, CLAUDE  
; APPLICANT: PERRET, GERARD  
; APPLICANT: MAZIE, JEAN-CLAUDE  
; APPLICANT: PLOUET, JEAN  
; APPLICANT: VASSAY, ROGER  
; TITLE OF INVENTION: PEPTIDES BLOCKING VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF)-MEDIA  
; FILE REFERENCE: 205060USO  
; CURRENT FILING DATE: 2003-01-15  
; PRIOR APPLICATION NUMBER: US/09/822,270  
; PRIOR FILING DATE: 2001-04-02  
; PRIOR APPLICATION NUMBER: US 60/193,396  
; PRIOR FILING DATE: 2000-03-31  
; NUMBER OF SEQ ID NOS: 17  
; SOFTWARE: PatentIn version 3.1  
; SEQ ID NO 17  
; LENGTH: 110  
; TYPE: PRT  
; ORGANISM: ARTIFICIAL SEQUENCE  
; FEATURE:  
; OTHER INFORMATION: SYNTHETIC PEPTIDE  
US-10-342-371-17

Query Match 96.4%; Score 133; DB 12; Length 110;  
Best Local Similarity 96.2%; Pred. No. 3.5e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEESNITMQIMRIKPH 26  
|||||  
Db 61 CNDGLECVPTESNITMQIMRIKPH 86

RESULT 11

US-10-392-931-10  
; Sequence 10, Application US/10392931  
; Publication No. US20030194643A1  
; GENERAL INFORMATION:  
; APPLICANT: Schreiner, George F.  
; APPLICANT: Johnson, Richard J.  
; APPLICANT: Scios, Inc.  
; APPLICANT: University of Washington  
; TITLE OF INVENTION: TREATMENT OF MICROVASCULAR ANGIOPATHIES  
; FILE REFERENCE: SCIOS.003A  
; CURRENT FILING DATE: 1999-09-09  
; PRIOR APPLICATION NUMBER: 60/099694  
; PRIOR FILING DATE: 1998-09-09  
; PRIOR APPLICATION NUMBER: 60/126406  
; PRIOR FILING DATE: 1999-03-26  
; PRIOR APPLICATION NUMBER: 60/126615  
; PRIOR FILING DATE: 1999-03-27  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 10

; LENGTH: 110  
; TYPE: PRT  
; ORGANISM: Homo sapien  
US-10-392-931-10

Query Match 96.4%; Score 133; DB 12; Length 110;  
Best Local Similarity 96.2%; Pred. No. 3.5e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEESNITMQIMRIKPH 26  
|||||  
Db 61 CNDGLECVPTESNITMQIMRIKPH 86

RESULT 12

US-10-392-931-11  
; Sequence 11, Application US/10392931  
; Publication No. US20030194643A1  
; GENERAL INFORMATION:  
; APPLICANT: Schreiner, George F.  
; APPLICANT: Johnson, Richard J.  
; APPLICANT: Scios, Inc.  
; APPLICANT: University of Washington  
; TITLE OF INVENTION: TREATMENT OF MICROVASCULAR ANGIOPATHIES  
; FILE REFERENCE: SCIOS.003A  
; CURRENT FILING DATE: 1999-09-09  
; PRIOR APPLICATION NUMBER: 60/099694  
; PRIOR FILING DATE: 1998-09-09  
; PRIOR APPLICATION NUMBER: 60/126406  
; PRIOR FILING DATE: 1999-03-26  
; PRIOR APPLICATION NUMBER: 60/126615  
; PRIOR FILING DATE: 1999-03-27  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 11  
; LENGTH: 110  
; TYPE: PRT  
; ORGANISM: Homo sapien  
US-10-392-931-11

Query Match 96.4%; Score 133; DB 12; Length 110;  
Best Local Similarity 96.2%; Pred. No. 3.5e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEESNITMQIMRIKPH 26  
|||||  
Db 61 CNDGLECVPTESNITMQIMRIKPH 86

RESULT 13

US-10-418-529-10  
; Sequence 10, Application US/10418529  
; Publication No. US20030220262A1  
; GENERAL INFORMATION:  
; APPLICANT: Schreiner, George F.  
; APPLICANT: Johnson, Richard J.  
; APPLICANT: Scios, Inc.  
; APPLICANT: University of Washington  
; TITLE OF INVENTION: TREATMENT OF ECLAMPSIA AND PRE-ECLAMPSIA  
; FILE REFERENCE: SCIOS.003C1  
; CURRENT FILING DATE: 2003-04-16  
; PRIOR APPLICATION NUMBER: 60/099694  
; PRIOR FILING DATE: 1998-09-09  
; PRIOR APPLICATION NUMBER: 60/126406  
; PRIOR FILING DATE: 1999-03-26  
; PRIOR APPLICATION NUMBER: 60/126615  
; PRIOR FILING DATE: 1999-03-27  
; PRIOR APPLICATION NUMBER: 09/392931  
; PRIOR FILING DATE: 1999-09-09  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0

SEQ ID NO 10  
LENGTH: 110  
TYPE: PRT  
ORGANISM: Homo sapien  
US-10-418-529-10

Query Match 96.4%; Score 133; DB 12; Length 110;  
Best Local Similarity 96.2%; Pred. No. 3.5e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTESNITWQIMRIKPH 26  
Db 61 CNDGELCVPTESNITWQIMRIKPH 86

RESULT 14  
US-10-418-529-11  
Sequence 11, Application US/10418529  
Publication No. US20030220262A1  
GENERAL INFORMATION:  
APPLICANT: Schreiner, George F.  
APPLICANT: Johnson, Richard J.  
APPLICANT: Scios, Inc.  
APPLICANT: University of Washington  
TITLE OF INVENTION: TREATMENT OF ECLAMPSIA AND PRE-ECLAMPSIA  
FILE REFERENCE: SCIOS.003C1  
CURRENT APPLICATION NUMBER: US/10/418,529  
CURRENT FILING DATE: 2003-04-16  
PRIOR APPLICATION NUMBER: 60/099694  
PRIOR FILING DATE: 1998-09-09  
PRIOR APPLICATION NUMBER: 60/126406  
PRIOR FILING DATE: 1999-03-26  
PRIOR APPLICATION NUMBER: 60/126615  
PRIOR FILING DATE: 1999-03-27  
PRIOR APPLICATION NUMBER: 09/392931  
PRIOR FILING DATE: 1999-09-09  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 11  
LENGTH: 110  
TYPE: PRT  
ORGANISM: Homo sapien  
US-10-418-529-11

Query Match 96.4%; Score 133; DB 12; Length 110;  
Best Local Similarity 96.2%; Pred. No. 3.5e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTESNITWQIMRIKPH 26  
Db 61 CNDGELCVPTESNITWQIMRIKPH 86

RESULT 15  
US-10-083-817-11  
Sequence 11, Application US/10083817  
Publication No. US20020193288A1  
GENERAL INFORMATION:  
APPLICANT: Schreiner, George F.  
APPLICANT: Johnson, Richard J.  
TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND  
FILE REFERENCE: SCIOS.002C1  
CURRENT APPLICATION NUMBER: US/10/083,817  
CURRENT FILING DATE: 2002-02-26  
PRIOR APPLICATION NUMBER: 60/099,694  
PRIOR FILING DATE: 1998-09-09  
PRIOR APPLICATION NUMBER: 09/392,932  
PRIOR FILING DATE: 1999-09-09  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 11  
LENGTH: 110

TYPE: PRT  
ORGANISM: Homo Sapien  
US-10-083-817-11

Query Match 96.4%; Score 133; DB 14; Length 110;  
Best Local Similarity 96.2%; Pred. No. 3.5e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTESNITWQIMRIKPH 26  
Db 61 CNDGELCVPTESNITWQIMRIKPH 86

Search completed: January 30, 2004, 12:15:02  
Job time : 25.8583 secs



GenCore version 5.1.6  
Copyright (c) 1993 - 2004 Compugen Ltd.

OM protein - protein search, using sw model

Run on: January 30, 2004, 11:34:23 ; Search time 11.2 Seconds

(without alignment)  
223.249 Million cell updates/sec

Title: US-09-266-543-7

Perfect score: 138

Sequence: 1 CNDGLESVPTEESNITQWIRKPH 26

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283308 seqs, 96168682 residues

Total number of hits satisfying chosen parameters: 283308

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

1: PIR\_76:\*

2: pir1:\*

3: pir3:\*

4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	133	96.4	232	2 A41551	vascular endotheli
2	127	92.0	190	2 S52130	vascular endotheli
3	122	88.4	190	2 B44881	vascular endotheli
4	122	88.4	214	2 A44881	vascular endotheli
5	121	87.7	120	2 A33787	vascular endotheli
6	121	87.7	146	2 S57956	vascular endotheli
7	121	87.7	190	2 B40080	vascular endotheli
8	121	87.7	190	2 A35987	glioma-derived vas
9	96	69.6	128	2 I51295	vascular endotheli
10	83	60.1	133	2 B49530	vascular endotheli
11	76	55.1	158	2 A56125	placental growth f
12	75	54.3	149	2 A41236	vascular endotheli
13	66	47.8	188	2 JC4680	vascular endotheli
14	66	47.8	207	2 UC4679	vascular endotheli
15	51	37.0	385	2 A91146	hypothetical prote
16	51	37.0	385	2 B85991	hypothetical prote
17	51	37.0	385	2 C65119	acridiflavin resista
18	50	36.2	830	2 T41509	serine/threonine-p
19	49	35.5	308	2 T04009	hypothetical prote
20	47	34.1	140	2 G96603	unknown protein FI
21	47	34.1	742	2 T25415	hypothetical prote
22	47	34.1	964	2 T32482	hypothetical prote
23	47	34.1	1209	2 T21455	hypothetical prote
24	46.5	33.7	578	2 S50446	VAC8 protein - Yea
25	46	33.3	313	2 A11948	hypothetical prote
26	46	33.3	1780	2 T17272	hypothetical prote
27	45	32.6	111	2 A69171	hypothetical prote
28	45	32.6	248	2 B83134	probable pil1 assem
29	45	32.6	294	2 AD1649	weakly phage relat

30	45	32.6	373	2 AF1802	hypothetical prote
31	45	32.6	583	2 T50103	probable oxidoredu
32	45	32.6	865	2 S69044	hypothetical prote
33	45	32.6	1536	2 B72310	hypothetical prote
34	45	32.6	1980	2 S54307	hypothetical prote
35	44.5	32.2	803	2 T47035	myosin heavy chain
36	44.5	32.2	853	2 S54384	hypothetical prote
37	44.5	32.2	1493	2 T6404	envelope polypept
38	44.5	31.9	116	2 B72110	hypothetical prote
39	44	31.9	116	2 C96513	hypothetical prote
40	44	31.9	192	2 A48353	genome polypept
41	44	31.9	192	2 B48353	genome polypept
42	44	31.9	251	2 T08315	hypothetical prote
43	44	31.9	368	1 BGHUN	biglycan precursor
44	44	31.9	477	2 A75545	antidiphosphoribosy
45	44	31.9	487	2 G95388	probable aldehyde

## ALIGNMENTS

## RESULT 1

vascular endothelial growth factor 206 precursor - human  
A1551  
N:Alternate names: vascular permeability factor  
M:Contents: vascular endothelial growth factor 121 (VEGF 121); VEGF 165; VEGF 189; VEGF  
C:Date: 28-Aug-1992 #sequence\_revision 28-Aug-1992 #text\_change 05-Nov-1999  
C:Accession: A41551; C41551; B41551; A40454; B40454; C40454; A40079; A40080; J01463; J01  
R:Howck, K.A.; Ferrara, N.; Winer, J.; Cachianes, G.; Li, B.; Leung, D.W.  
Mol. Endocrinol. 5, 1806-1814, 1991  
A:Title: The vascular endothelial growth factor family: identification of a fourth molec  
A:Reference number: A41551; MUID:91268017; PMID:1791831  
A:Accession: A41551  
A:Molecule type: mRNA  
A:Residues: 1-232 <HOU1>  
A:Cross-references: GB:S85192; NID:G246155; PID:G246156  
A:Accession: C41551  
A:Status: nucleic acid sequence not shown  
A:Molecule type: mRNA  
A:Residues: 1-140, 'N', 183-232 <HOU2>  
A:Accession: B41551  
A:Status: nucleic acid sequence not shown; not compared with conceptual translation  
A:Molecule type: mRNA  
A:Residues: 1-141, 227-232 <HOU>  
R:Titshier, E.; Mitchell, R.; Hartman, T.; Silva, M.; Gospodarowicz, D.; Fiddes, J.C.; Ab  
J. Biol. Chem. 266, 11947-11954, 1991  
A:Title: The human gene for vascular endothelial growth factor. Multiple protein forms a  
A:Reference number: A40454; MUID:91268072; PMID:1711045  
A:Accession: A40454  
A:Molecule type: DNA  
A:Residues: 1-140, 'N', 183-232 <TI2>  
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63976; GB  
A:Accession: C40454  
A:Molecule type: DNA  
A:Residues: 1-141, 227-232 <TI3>  
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63978  
R:Keck, P.J.; Hauser, S.D.; Kivrl, G.; Sanzo, K.; Warren, T.; Feder, J.; Connolly, D.T.  
Science 246, 1309-1312, 1989  
A:Title: Vascular permeability factor: an endothelial cell mitogen related to PDGF.  
A:Reference number: A40079; MUID:90065609; PMID:2479987  
A:Accession: A40079  
A:Status: not compared with conceptual translation  
A:Molecule type: mRNA  
A:Residues: 1-165, 183-232 <KEC>  
A:Cross-references: GB:M27281; NID:G340300; PID:AAA36807.1; PID:G340301  
R:Leung, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.  
Science 246, 1306-1309, 1989  
A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.

```

A:Reference number: A40080; MUID:90069608; PMID:2479986
A:Accession: A40080
A:Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-140; 'N', 183-232 <LEU>
A:Cross-references: GB:M32977; NID:g181970; PIDN:AAA35789.1; PID:g181971
R:Weinberg, K.; Marzke, D.; Welch, H.A.
Biochem. Biophys. Res. Commun. 183, 1167-1174, 1992
A:Title: AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial
A:Reference number: J01463; MUID:922331879; PMID:1567395
A:Accession: J01463
A:Molecule type: mRNA
A:Residues: 1-140; 'N', 183-232 <WEI>
A:Cross-references: EMBL:X62568; NID:g37658; PIDN:CAA44447.1; PID:g37659
A:Experimental source: AIDS-Kaposi's sarcoma cell
A:Accession: J01464
A:Molecule type: mRNA
A:Residues: 1-140; 'N', 227-232 <WE2>
A:Experimental source: AIDS-Kaposi's sarcoma cell
R:Connolly, D.T.; Olander, J.V.; Heuvelman, D.; Nelson, R.; Monsell, R.; Siegel, N.; Hay
J. Biol. Chem. 264, 20017-20024, 1989
A:Title: Human vascular permeability factor. Isolation from U937 cells.
A:Reference number: A34492; MUID:90062112; PMID:2584205
A:Accession: A34492
A:Molecule type: protein
A:Residues: 27-36; 43-49; 'R', 72-76; 'Q', 78-81; 59-71 <CON>
A:Comment: The most common of several alternatively spliced forms is VEGF 165.
C:Keywords:
A:Gene: GDB:VEGF
A:Cross-references: GDB:132244; OMIM:192240
A:Map position: 6p21-6p12
C:Function:
A:Description: promotes fluid and protein leakage from blood vessels
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; extracellular pro
F:1-32/2/Produce: vascular endothelial growth factor 206 precursor #status predicted <V20
F:1-165; 183-232/Produce: vascular endothelial growth factor 169 precursor #status predi
F:1-141; 227-232/Produce: vascular endothelial growth factor 121 precursor #status predi
F:1-26/Boman: signal sequence #status predicted <SIG>
F:101/Binding site: carbohydrate (asn) (covalent) #status predicted

Query Match 96.4%; Score 133; DB 2; Length 232;
Best Local Similarity 96.2%; Pred. No. 3e-13;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTESSNITWQIMRIKPH 26
DB 87 CNDGELCPTESSNITWQIMRIKPH 112

RESULT 2
SS2130
vascular endothelial growth factor - pig
C:Species: Sus scrofa domestica (domestic pig)
C:Date: 14-Jul-1995 #sequence revision 21-Jul-1995 #text_change 05-Nov-1999
A:Accession: SS2130
R:Sharma, H.S.; Tang, Z.H.; Gho, B.C.G.; Verdouw, P.D.
Biochim. Biophys. Acta 1260, 235-238, 1995
A:Title: Nucleotide sequence and expression of the porcine vascular endothelial growth f
A:Reference number: SS2130; MUID:95143284; PMID:7841203
A:Accession: SS2130
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <SHA>
A:Cross-references: GB:X81380; NID:g587559; PIDN:CAA57143.1; PID:g587560

Query Match 92.0%; Score 127; DB 2; Length 190;
Best Local Similarity 92.3%; Pred. No. 2.1e-12;
Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDGLESVPTESSNITWQIMRIKPH 26
DB 86 CNDGELCPTESSNITWQIMRIKPH 111

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RESULT 3
B44881
vascular endothelial growth factor-1 precursor - mouse
C:Species: Mus musculus (house mouse)
C:Date: 03-Feb-1994 #sequence revision 03-Feb-1994 #text_change 05-Nov-1999
A:Accession: B44881; A43351; A61029
R:Bretter, G.; Albrecht, U.; Sterrer, S.; Risau, W.
Development 114, 521-532, 1992
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis;
A:Reference number: A44881; MUID:92274860; PMID:1592003
A:Accession: B44881
A:Molecule type: mRNA
A:Residues: 1-190 <BRE>
A:Cross-references: GB:S38063; NID:g249858; PIDN:AA22253.1; PID:g249859
A:Experimental source: embryo
A:Note: sequence extracted from NCBI backbone (NCBIN:107622, NCBIPI:107623)
R:Claffey, K.P.; Wilkison, W.O.; Spiegelman, B.M.
J. Biol. Chem. 267, 16317-16322, 1992
A:Title: Vascular endothelial growth factor. Regulation by cell differentiation and acti
A:Reference number: A43351; MUID:92355593; PMID:1644816
A:Accession: A43351
A:Molecule type: mRNA
A:Residues: 1-116; 'ER', 119-190 <CLA>
A:Cross-references: GB:M95200; NID:g202350; PIDN:AAA40547.1; PID:g202351
A:Note: sequence extracted from NCBI backbone (NCBIN:110665, NCBIPI:110675)
R:Rosenthal, R.A.; Megyesi, J.F.; Henzel, W.J.; Ferrara, N.; Folkman, J.
Growth Factors 4, 53-59, 1990
A:Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelial E
A:Reference number: A61029; MUID:91197543; PMID:2085441
A:Accession: A61029
A:Molecule type: protein
A:Residues: 27-38 <ROS>
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein; mlt

Query Match 88.4%; Score 122; DB 2; Length 190;
Best Local Similarity 88.5%; Pred. No. 1.3e-11;
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDGLESVPTESSNITWQIMRIKPH 26
DB 86 CNDGELCPTESSNITWQIMRIKPH 111

RESULT 4
A44881
vascular endothelial growth factor-3 precursor - mouse
N:Contains: Mus musculus (house mouse)
C:Species: Mus musculus (house mouse)
C:Date: 03-Feb-1994 #sequence revision 03-Feb-1994 #text_change 08-Oct-1999
A:Accession: A44881; C44881; A60932; SS2136
R:Bretter, G.; Albrecht, U.; Sterrer, S.; Risau, W.
Development 114, 521-532, 1992
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis
A:Reference number: A44881; MUID:92274860; PMID:1592003
A:Accession: A44881
A:Molecule type: mRNA
A:Residues: 1-214 <BRE>
A:Cross-references: GB:S37052; NID:g249856; PIDN:AA22252.1; PID:g249857
A:Experimental source: embryo
A:Note: sequence extracted from NCBI backbone (NCBIN:104677, NCBIPI:104678)
A:Accession: C44881
A:Molecule type: mRNA
A:Residues: 1-140; 209-214 <BR2>
A:Cross-references: GB:S38100; NID:g249860; PIDN:AA22254.1; PID:g249861
A:Note: sequence extracted from NCBI backbone (NCBIN:107624, NCBIPI:107625)
R:Clausen, M.; Gerlach, H.; Bretel, J.; Wang, F.; Familletti, P.C.; Pan, Y.C.
J. Exp. Med. 172, 1535-1545, 1990
A:Title: Vascular permeability factor: a tumor-derived polypeptide that induces endothel
A:Reference number: A60932; MUID:91079755; PMID:2258694
A:Accession: A60932
A:Molecule type: protein
A:Residues: 27-33 <CLA>

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R. S. Subhara, T. Kaul, S. C. J. Mitsu, Y. J. Madhwa, R. Biochim. Biophys. Acta 1224, 365-370, 1994  
A>Title: Enhanced expression of multiple forms of VEGF is associated with spontaneous im  
A:Accession: S52136  
A:Reference number: S52136; MUID:95101726; PMID:7803491  
A:Status: preliminary  
A:Molecule type: protein  
A:Residues: 27-46 <SIG>  
C:Comment: Homodimers could be demonstrated for recombinant VEGF-2 but not VEGF-3.  
C:Keywords: alternative splicing; angiotensins; disulfide bond; glycoprotein; homodimer  
F:1-56/Domain: signal sequence #status predicted <SIG>  
F:27-214/Product: vascular endothelial growth factor-3 #status experimental <MAT>

Query Match 88.4%; Score 122; DB 2; Length 214;  
Best Local Similarity 88.5%; Pred. No. 1.5e-11;  
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTESNITQIMRIKPH 26  
DB 86 CNDEALCVPTESNITQIMRIKPH 111

RESULT 5  
A33787  
vascular endothelial growth factor (version 1) - bovine  
C:Species: Bos primigenius taurus (cattle)  
C:Date: 16-Mar-1990 #sequence\_revision 16-Mar-1990 #text\_change 05-Nov-1999  
C:Accession: A33787  
R:Tischer, B.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Crisp  
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989  
A>Title: Vascular endothelial growth factor: a new member of the platelet-derived growth  
A:Reference number: A33787; MUID:90121225; PMID:2610687  
A:Accession: A33787  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-120 <TIS>  
A:Cross-references: GM:M3750; NID:g163810; PIDN:AAA30805.1; PID:g163811  
C:Keywords: alternative splicing

Query Match 87.7%; Score 121; DB 2; Length 120;  
Best Local Similarity 88.5%; Pred. No. 1.1e-11;  
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTESNITQIMRIKPH 26  
DB 60 CNDESLCVPTESNITQIMRIKPH 85

RESULT 6  
S57956  
ovine vascular endothelial growth factor - sheep  
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C:Date: 13-Jan-1996 #sequence\_revision 01-Mar-1996 #text\_change 05-Nov-1999  
C:Accession: S57956  
R:Redmer, D. A.; Dai, Y.; Li, J.; Jones, S. C.; Moor, R. M.  
submitted to the EMBL Data Library, July 1995  
A:Reference number: S57956  
A:Accession: S57956  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-146 <RED>  
A:Cross-references: EMBL:X89506; NID:g899350; PIDN:CAA61677.1; PID:g899351

Query Match 87.7%; Score 121; DB 2; Length 146;  
Best Local Similarity 88.5%; Pred. No. 1.4e-11;  
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTESNITQIMRIKPH 26  
DB 86 CNDESLCVPTESNITQIMRIKPH 111

RESULT 7

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vascular endothelial growth factor precursor (version 2) - bovine
B40080
C.Species: Bos primigenius taurus (cattle)
C.Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 05-Nov-1999
A.Accession: B40080, B33781, A33255
R.Lueng, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.
Science 246, 1306-1309, 1989
A.Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.
A.Reference number: A40080, MWID:90069608, PMID:2479986
A.Accession: B40080
A.Molecule type: mRNA
A.Residues: 1-190 <LEU>
A.Cross-references: GB:M32976; NID:g163006; PIDN:AAA30502.1; PID:g163007
R.Tischer, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Cripps
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
A.Title: Vascular endothelial growth factor: a new member of the platelet-derived growth
A.Reference number: A33787, MWID:90121225, PMID:2610687
A.Accession: B33787
A.Molecule type: mRNA
A.Residues: 27-190 <TIS>
A.Cross-references: GB:M31836; NID:g163808; PIDN:AAA30804.1; PID:g163809
R.Ferrara, N.; Henzel, W.J.
Biochem. Biophys. Res. Commun. 161, 851-858, 1989
A.Title: Pituitary follicular cells secrete a novel heparin-binding growth factor specific
A.Reference number: A33255, MWID:89286596, PMID:2755925
A.Accession: A33255
A.Molecule type: protein
A.Residues: 27-31 <FER>
C.Keywords: alternative splicing; glycoprotein
F.1-26/Domain: signal sequence #status predicted <SIG>
F.127-190/Product: vascular endothelial growth factor #status predicted <MAT>
F.100/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match      87.7%; Score 121; DB 2; Length 190;
Best Local Similarity 88.5%; Pred. No. 1.9e-11;
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY      1 CNDEGLESVPTRESNITMQIMRIKPH 26
          ||||| ||||| ||||| ||||| |||||
DB      86 CNDESLKCVPTSEFNITMQIMRIKPH 111

RESULT 8
A35987
glioma-derived vascular endothelial cell growth factor - rat
C.Species: Rattus norvegicus (Norway rat)
C.Date: 16-Nov-1990 #sequence_revision 16-Nov-1990 #text_change 05-Nov-1999
A.Accession: A35987
R.Comn, G.; Bayne, M.L.; Soderman, D.D.; Kwok, P.W.; Sullivan, K.A.; Palisi, T.M.; Hope,
Proc. Natl. Acad. Sci. U.S.A. 87, 2628-2632, 1990
A.Title: Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is ho
A.Reference number: A35987, MWID:90207249, PMID:2320579
A.Accession: A35987
A.Status: preliminary
A.Molecule type: mRNA
A.Residues: 1-190 <CON>
A.Cross-references: GB:M32167; NID:g204287; PIDN:AAA41211.1; PID:g204288

Query Match      87.7%; Score 121; DB 2; Length 190;
Best Local Similarity 84.6%; Pred. No. 1.9e-11;
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY      1 CNDEGLESVPTRESNITMQIMRIKPH 26
          ||||| ||||| ||||| ||||| |||||
DB      86 CNDEALKCVPTSESNITMQIMRIKPH 111

RESULT 9
I51295
vascular endothelial growth factor - quail (fragment)
C.Species: Phasianidae gen. sp. (quail)
C.Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 28-Feb-1997
A.Accession: I51295

```

R;Plamme, I.; Breier, G.; Risseau, W.  
 Dev. Biol. 169, 699-712, 1995  
 A>Title: Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (Flk-1) are expressed in human placenta  
 A:Reference number: 151295; MUID:95301109; PMID:7781909  
 A:Accession: 151295  
 A:Status: preliminary; translated from GB/EMBL/DBJ  
 A:Accession: 151295  
 A:Molecule type: DNA  
 A:Residues: 1-128 <FLA>  
 A:Cross-references: GB:S78343; NID:g999147; PID:g999148  
 A:Genetics: VEGF

Query Match 69.6%; Score 96; DB 2; Length 128;  
 Best Local Similarity 65.4%; Pred. No. 1.1e-07;  
 Matches 17; Conservative 3; Mismatches 6; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTESNITMOMIRKPH 26  
 Db 28 CGDEGLCVPTVYVNTMEIRIKPH 53

## RESULT 10

B49530  
 Vascular endothelial growth factor homolog A2R, 14.7K - Orf virus  
 C:Species: Orf virus  
 C>Date: 07-Apr-1994 #sequence\_revision 18-Nov-1994 #text\_change 08-Oct-1999  
 C:Accession: B49530  
 R;Lytle, D.J.; Fraser, K.M.; Fleming, S.B.; Mercer, A.A.; Robinson, A.J.  
 J. Virol. 68, 84-92, 1994  
 A>Title: Homologs of vascular endothelial growth factor are encoded by the poxvirus orf  
 A:Reference number: A49530; MUID:94076465; PMID:8254780  
 A:Contents: N22  
 A:Accession: B49530  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-133 <LYT>  
 A:Cross-references: GB:S67520; NID:g456897; PIDN:AB29220.1; PID:g456899  
 A:Note: sequence inconsistent with nucleotide translation  
 A:Note: sequence extracted from NCBI backbone (NCBIN:141420, NCBI:P:141425)

Query Match 60.1%; Score 83; DB 2; Length 133;  
 Best Local Similarity 66.7%; Pred. No. 1.3e-05;  
 Matches 14; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTESNITMOMIRK 21  
 Db 71 CNDEGLCVPTVYVNTMEIRIKPH 91

## RESULT 11

A56125  
 Placental growth factor precursor - rat  
 C:Species: Rattus norvegicus (Norway rat)  
 C>Date: 19-Oct-1995 #sequence\_revision 19-Oct-1995 #text\_change 05-Nov-1999  
 C:Accession: A56125  
 R;Disalvo, J.; Bayne, M.L.; Conn, G.; Kwok, P.W.; Trivedi, P.G.; Soderman, D.D.; Palisi, J. Biol. Chem. 270, 7717-7723, 1995  
 A>Title: Purification and characterization of a naturally occurring vascular endothelial  
 A:Reference number: A56125; MUID:95221439; PMID:7706320  
 A:Accession: A56125  
 A:Status: preliminary; not compared with conceptual translation  
 A:Molecule type: mRNA  
 A:Residues: 1-158 <DIS>  
 A:Cross-references: GB:L40030; NID:g1263413; PIDN:AAA97426.1; PID:g1263414  
 C:Keywords: glycoprotein

Query Match 55.1%; Score 76; DB 2; Length 158;  
 Best Local Similarity 53.8%; Pred. No. 0.0002;  
 Matches 14; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTESNITMOMIRKPH 26  
 Db 83 CGDEGLHCVALKTANITMOMIRKPH 108

## RESULT 12

A41236  
 Placental growth factor precursor - human  
 C:Species: Homo sapiens (man)  
 C>Date: 19-Jun-1992 #sequence\_revision 19-Jun-1992 #text\_change 05-Nov-1999  
 C:Accession: A41236  
 R;Maglione, D.; Guerrier, V.; Vigierto, G.; Della-Bovi, P.; Persico, M.G.  
 Proc. Natl. Acad. Sci. U.S.A. 88, 9267-9271, 1991  
 A>Title: Isolation of a human placenta cDNA coding for a protein related to the vascular  
 A:Reference number: A41236; MUID:92021031; PMID:1924389  
 A:Accession: A41236  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-149 <MAG>  
 A:Cross-references: GB:X54936; NID:g35521; PIDN:CAA38698.1; PID:g35522  
 A:Genetics: GDB:PGF  
 A:Gene: GDB:PGF  
 A:Cross-references: GDB:134676; OMIM:601121  
 A:Map position: 14q24-14q31

Query Match 54.3%; Score 75; DB 2; Length 149;  
 Best Local Similarity 50.0%; Pred. No. 0.00027;  
 Matches 12; Conservative 6; Mismatches 6; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTESNITMOMIRK 24  
 Db 87 CGDENLHCVPTVYVNTMEIRIKPH 110

## RESULT 13

JC4680  
 Vascular endothelial growth factor-related factor 167 precursor - mouse  
 N:Alternate names: VRF 167 protein  
 C:Species: Mus musculus (house mouse)  
 C>Date: 10-May-1996 #sequence\_revision 19-Jul-1996 #text\_change 05-Nov-1999  
 C:Accession: JC4680  
 R;Tomson, S.; Lagercrantz, J.; Grimond, S.; Sillins, G.; Nordenskjöld, M.; Weber, G.; H  
 Biochem. Biophys. Res. Commun. 220, 922-928, 1996  
 A>Title: Characterization of the murine VEGF-related factor gene.  
 A:Reference number: JC4679; MUID:96185052; PMID:8607868  
 A:Accession: JC4680  
 A:Molecule type: mRNA  
 A:Residues: 1-188 <TOM>  
 A:Cross-references: GB:U43837; NID:g1314335; PIDN:AA52553.1; PID:g1314336  
 A:Comment: This factor is a mitogen, that is selective for endothelial cells, and belong  
 at endothelial growth factors 167 and VEGF 186.  
 C:Genetics:  
 A:Gene: vrf  
 A:Map position: 19

A:Introns: 137/2  
 F:1-21/Domain: signal sequence #status predicted <SIG>  
 F:22-188/Product: vascular endothelial growth factor-related factor #status predicted <N>

Query Match 47.8%; Score 66; DB 2; Length 188;  
 Best Local Similarity 50.0%; Pred. No. 0.0095;  
 Matches 12; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTESNITMOMIRK 24  
 Db 82 CPDDEGLCVPTGQHVNMOMIRK 105

## RESULT 14

JC4679  
 Vascular endothelial growth factor-related factor 186 precursor - mouse  
 N:Alternate names: VRF 186 protein, VEGF 186  
 C:Species: Mus musculus (house mouse)  
 C>Date: 10-May-1996 #sequence\_revision 19-Jul-1996 #text\_change 05-Nov-1999  
 C:Accession: JC4679  
 R;Tomson, S.; Lagercrantz, J.; Grimond, S.; Sillins, G.; Nordenskjöld, M.; Weber, G.;  
 Biochem. Biophys. Res. Commun. 220, 922-928, 1996



A/Title: Characterization of the murine VEGF-related factor gene.

A/Reference number: J04679; MUID:96183052; PMID:8607868

A/Accession: J04679

A/Molecule type: mRNA

A/Residues: 1-207 <TOM>

A/Cross-references: GB:U43836; NID:G1703480; PID:MAC52932.1; PID:G1314334

C/Comment: This factor is a mitogen, that is selective for endothelial cells, and belongs to the endothelial growth factors 167 and 168.

C/Genetics:

A/Gene: vrf

A/Map position: 19

C/Keywords: growth factor

F/1-21/Domain: signal sequence #status predicted <SIG>

F/22-207/Product: vascular endothelial growth factor related factor #status predicted <V

Query Match 47.8%; Score 66; DB 2; Length 207;

Best Local Similarity 50.0%; Pred. No. 0.011;

Matches 12; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

QY 1 CNDGLESVPTESNITWQIMRIK 24

Db 82 CPDGLGECVPTGCHQVHMQLIMIQ 105

# RESULT 15

A91146

hypothetical protein ECe4137 [imported] - Escherichia coli (strain O157:H7, substrain R1

C/Species: Escherichia coli

C/Date: 18-Jul-2001 #sequence\_revision 18-Jul-2001 #text\_change 18-Jul-2001

C/Accession: A91146

R/Hayashi, T.; Makino, K.; Ohnishi, M.; Kurokawa, K.; Ishii, K.; Yokoyama, K.; Han, C.G.

gasawara, N.; Yasunaga, T.; Kihara, S.; Shiba, T.; Hattori, M.; Shinagawa, H.

DNA Res. 8: 11-22, 2001

A/Title: Complete genome sequence of enterohemorrhagic Escherichia coli O157:H7 and gen

A/Reference number: A99629; MUID:21156231; PMID:11258796

A/Accession: A91146

A/Status: Preliminary

A/Molecule type: DNA

A/Residues: 1-385 <HAY>

A/Cross-references: GB:BA000007; PIDN:BA837560.1; PID:G13363610; GSPDB:GN00154

A/Experimental source: strain O157:H7, substrain R1MD 0509952

C/Genetics:

A/Gene: ECe4137

Query Match 37.0%; Score 51; DB 2; Length 385;

Best Local Similarity 36.0%; Pred. No. 5.1;

Matches 9; Conservative 5; Mismatches 11; Indels 0; Gaps 0;

QY 1 CNDGLESVPTESNITWQIMRIK 25

Db 24 CNDKGEKAVGEPQVTHIVKTAP 48

Search completed: January 30, 2004, 11:46:17  
Job time : 12.2 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:27:48 ; Search time 6 Seconds  
(without alignments)

203.782 Million cell updates/sec

Title: US-09-266-543-7  
Perfect score: 138  
Sequence: 1 CNDGLSVPRESNITQWIRKPH 26

Scoring table: BLOSUM62  
Gapop 10.0 , Gapept 0.5

Searched: 127863 seqs, 47026705 residues

Total number of hits satisfying chosen parameters: 127863

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%

Listing first 45 summaries

Database : SwissProt\_41:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	133	96.4	232	1 VEGA_HUMAN	P15692 homo sapien
2	127	92.0	190	1 VEGA_PIG	P49151 sus scrofa
3	127	92.0	214	1 VEGA_CANFA	Q9mvy3 canis faml
4	122	88.4	214	1 VEGA_MOUSE	Q00731 mus musculu
5	121	87.7	146	1 VEGA_SHEEP	P50412 ovis aries
6	121	87.7	164	1 VEGA_CAVPO	P26617 cavia porce
7	121	87.7	190	1 VEGA_BOVIN	P15691 bos taurus
8	121	87.7	190	1 VEGA_HORSE	Q9gkr0 equus cabal
9	121	87.7	214	1 VEGA_RAT	P16612 rattus norv
10	116	84.1	190	1 VEGA_MESAU	Q99p81 mesocricetu
11	96	69.6	216	1 VEGA_CHICK	P52582 gallus gall
12	84	60.9	158	1 P1GF_MOUSE	P49764 mus musculu
13	79	57.2	133	1 VEGH_ORFN2	P52584 orf virus (
14	76	55.1	158	1 P1GF_RAT	Q63434 rattus norv
15	75	54.3	221	1 P1GF_BOVIN	P49763 homo sapien
16	71	51.4	149	1 P1GF_HUMAN	Q9s447 bos taurus
17	67	48.6	207	1 VEGB_HUMAN	P49765 homo sapien
18	66	47.8	207	1 VEGB_BOVIN	Q9s449 bos taurus
19	66	47.8	207	1 VEGB_MOUSE	P49766 mus musculu
20	60	43.5	135	1 VEGB_RAT	Q35480 rattus norv
21	51	37.0	385	1 ACRE_ECOLI	P24180 escherichia
22	46.5	33.7	578	1 VACB_YEAST	P13968 saccharomyc
23	46	33.3	358	1 VEGD_MOUSE	P97946 mus musculu
24	46	33.3	369	1 PGSI_CANFA	O02678 canis faml
25	46	33.3	646	1 Q9mvi1 homo sapien	Q9mvi1 homo sapien
26	46	33.3	1050	1 FLRI_HUMAN	P58681 mus musculu
27	45	33.6	111	1 P538_METTH	Q26378 methanobact
28	45	33.6	1536	1 Y984_THEMA	Q9s079 thermotoga
29	45	32.6	1980	1 MY9B_RAT	Q63358 rattus norv
30	45	32.6	2114	1 MY9B_MOUSE	Q9qy06 mus musculu
31	44.5	32.2	853	1 ENV_FV122	P12487 human immun
32	44	31.9	368	1 PGSI_HUMAN	P21810 homo sapien
33	44	31.9	377	1 MOA_CORGI	Q8n60 corynabacte

34	44	31.9	515	1 PDI_ASPO	Q00248 aspergillus
35	44	31.9	564	1 CDC7_MOUSE	Q9s0h0 mus musculu
36	44	31.9	757	1 LGR7_HUMAN	Q9bix9 homo sapien
37	44	31.9	972	1 POLS_IPNVN	P22495 infectious
38	44	31.9	1290	1 SMC4_XENLA	P50532 xenopus lae
39	43.5	31.5	294	1 ISPE_FUSNA	Q856c8 fusobacteri
40	43	31.2	260	1 PCNA_SCHPO	Q03392 schizosach
41	43	31.2	306	1 ISPE_MYCTU	Q05596 mycobacteri
42	43	31.2	345	1 TM04_MOUSE	Q911h8 mus musculu
43	43	31.2	365	1 PCN2_DAUCA	Q00265 daucus caro
44	43	31.2	419	1 VEGC_HUMAN	P49767 homo sapien
45	43	31.2	450	1 OSTA_SCHPO	Q10176 schizosach

## ALIGNMENTS

RESULT 1  
VEGA\_HUMAN STANDARD: PRT: 232 AA.  
AC P15692; O60720; O75875; Q16889; Q96NM5; Q9H1W8; Q9H1W9; Q9UH58;  
AC Q9UT23; O60720; O75875; Q16889; Q96NM5; Q9H1W8; Q9H1W9; Q9UH58;  
DT 01-APR-1990 (Rel. 14, Created)  
DT 28-FEB-2003 (Rel. 41, Last sequence update)  
DT 15-SEP-2003 (Rel. 42, Last annotation update)  
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
OX NCBI\_Taxid=9606;  
RN [1]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF189 AND VEGF165).  
RX MEDLINE=90069608; PubMed=2479986;  
RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;  
RT "Vascular endothelial growth factor is a secreted angiogenic mitogen.";  
RT Science 246:1306-1309(1989).  
RN [2]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF189), AND PARTIAL SEQUENCE.  
RX MEDLINE=90069609; PubMed=2479987;  
RA Keck P.J., Hauser S.D., Kivvi G., Sanzo K., Warren T., Feder J.,  
RT Connolly D.T.;  
RT "Vascular permeability factor, an endothelial cell mitogen related to PDGF.";  
RT Science 246:1309-1312(1989).  
RN [3]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF189).  
RX MEDLINE=91268072; PubMed=1711045;  
RA Tischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D.,  
RT Fiddes J.C., Abraham J.A.;  
RT "The human gene for vascular endothelial growth factor. Multiple protein forms are encoded through alternative exon splicing.";  
RT J. Biol. Chem. 266:11947-11954(1991).  
RN [4]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF206).  
RX MEDLINE=92168017; PubMed=1791831;  
RA Houck K.A., Ferrara N., Winer J., Cachianes G., Li B., Leung D.W.;  
RT "The vascular endothelial growth factor family: identification of a fourth molecular species and characterization of alternative splicing of RNA.";  
RT Mol. Endocrinol. 5:1806-1814(1991).  
RN [5]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
RX MEDLINE=92231879; PubMed=1567395;  
RA Weindel K., Marne D., Welch H.A.;  
RT "AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial growth factor.";  
RT Biochem. Biophys. Res. Commun. 183:1167-1174(1992).  
RN [6]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF145).  
RX MEDLINE=97207275; PubMed=9054410;

RA Poltorak Z., Cohen T., Sivan R., Kandelis Y., Spira G., Vlodavsky I.,  
 RA Keshet E., Neufeld G.;  
 RT "VEGF145, a secreted vascular endothelial growth factor isoform that  
 RT binds to extracellular matrix.";   
 RL J. Biol. Chem. 272:7151-7158(1997).  
 RN [17]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF183).  
 RC TISSUE=Kidney;  
 RA MEDLINE=98096474; PubMed=9878851;  
 RA Lei J., Jiang A., Pei D.;  
 RT "Identification and characterization of a new splicing variant of  
 RT vascular endothelial growth factor: VEGF183.";   
 RL Biochim. Biophys. Acta 1443:400-406(1998).  
 RN [8]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RC TISSUE=Breast;  
 RA MEDLINE=99119755; PubMed=9450968;  
 RA Claffey K.P., Shih S.-C., Mullen A., Dziennis S., Cusick J.L.,  
 RA Abrams K.R., Lee S.W., Detmar M.;  
 RT "Identification of a human VEGF/VEGF 3' untranslated region mediating  
 RT hypoxia-induced mRNA stability.";   
 RL Mol. Biol. Cell 9:469-481(1998).  
 RN [9]  
 RP SEQUENCE OF 114-209 FROM N.A. (ISOFORM VEGF183).  
 RC TISSUE=Retina;  
 RA MEDLINE=99165303; PubMed=10067980;  
 RA Jingjing L., Xue Y., Agarwal N., Roque R.S.;  
 RT "Human Muller cells express VEGF183, a novel spliced variant of  
 RT vascular endothelial growth factor.";   
 RL Invest. Ophthalmol. Vis. Sci. 40:752-759(1999).  
 RN [10]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RC TISSUE=Hemangioidendelioma;  
 RA Murata H., Fukushima J., Hattori S., Okuda K., Yanagi H.;  
 RT "Human CDNA for the vascular endothelial growth factor isoform  
 RT VEGF165.";   
 RL Submitted (DEC-1998) to the EMBL/Genbank/DBJ databases.  
 RN [11]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF148).  
 RC TISSUE=Renal glomerulus;  
 RA MEDLINE=99394945; PubMed=10464055;  
 RA Whittle C.J., Gillespie K.M., Harrison R., Mathieson P.W.,  
 RA Harper S.J.;  
 RT "Heterogeneous vascular endothelial growth factor (VEGF) isoform mRNA  
 RT and receptor mRNA expression in human glomeruli, and the  
 RT identification of VEGF148 mRNA, a novel truncated splice variant.";   
 RL Clin. Sci. 97:303-312(1999).  
 RN [12]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF121).  
 RA Sato J.D., Whitney R.G.;  
 RT "Human CDNA for vascular endothelial growth factor isoform VEGF121.";   
 RL Submitted (DEC-1999) to the EMBL/Genbank/DBJ databases.  
 RN [13]  
 RP SEQUENCE FROM N.A.  
 RA Williams S.;  
 RT Submitted (DEC-2000) to the EMBL/Genbank/DBJ databases.  
 RN [14]  
 RP SEQUENCE OF 23-232 FROM N.A. (VEGF165).  
 RA Rieder M.J., Armet T.Z., Carrington D.P., Chung M.-W., Lee K.L.,  
 RA Poel C.L., Toch B.J., Yi Q., Nickerson D.A.;  
 RT Submitted (OCT-2001) to the EMBL/Genbank/DBJ databases.  
 RN [15]  
 RP PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.  
 RA MEDLINE=90062112; PubMed=2584205;  
 RA Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monseil R.,  
 RA Siegel N., Haymore B.L., Lemgruber R., Feder J.;  
 RT "Human vascular permeability factor. Isolation from U937 cells.";   
 RL J. Biol. Chem. 264:20017-20024(1989).  
 RN [16]  
 RP SEQUENCE OF 27-41.  
 RA MEDLINE=93145946; PubMed=7678805;  
 RA Fieich B.L., Jaeger B., Schoellmann C., Weindel K., Wilting J.,  
 RA Koehn G., Marne D., Hug H., Welch H.A.;

RT "Synthesis and assembly of functionally active human vascular  
 RT endothelial growth factor homodimers in insect cells.";   
 RL Eur. J. Biochem. 211:19-26(1993).  
 RN [17]  
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.  
 RA MEDLINE=97352774; PubMed=9207067;  
 RA Muller Y.A., Li B., Christinger H.W., Welle J.A., Cunningham B.C.,  
 RA de Vos A.M.;  
 RT "Vascular endothelial growth factor: crystal structure and functional  
 RT mapping of the kinase domain receptor binding site.";   
 RL Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).  
 RN [18]  
 RP X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.  
 RA MEDLINE=98035455; PubMed=9351807;  
 RA Muller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;  
 RT "The crystal structure of vascular endothelial growth factor (VEGF)  
 RT refined to 1.93-A resolution: multiple copy flexibility and receptor  
 RT binding.";   
 RL Structure 5:1325-1338(1997).  
 RN [19]  
 RP X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.  
 RA MEDLINE=99119204; PubMed=9922142;  
 RA Wiesmann C., Christinger H.W., Cochran A.G., Cunningham B.C.,  
 RA Fairbrother W.J., Keenan C.J., Meng G., de Vos A.M.;  
 RT "Crystal structure of the complex between VEGF and a receptor-blocking  
 RT peptide.";   
 RL Biochemistry 37:17765-17772(1998).  
 RN [20]  
 RP STRUCTURE BY NMR OF 34-135.  
 RA MEDLINE=97477915; PubMed=9336848;  
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,  
 RA Starovasnik M.A.;  
 RT "1H, 13C, and 15N backbone assignment and secondary structure of the  
 RT receptor-binding domain of vascular endothelial growth factor.";   
 RL Protein Sci. 6:2250-2260(1997).  
 RN [21]  
 RP STRUCTURE BY NMR OF 137-215.  
 RA MEDLINE=98298440; PubMed=9634701;  
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,  
 RA Starovasnik M.A.;  
 RT "Solution structure of the heparin-binding domain of vascular  
 RT endothelial growth factor.";   
 RL Structure 6:637-648(1998).  
 RN [22]  
 RP FUNCTION.  
 RA MEDLINE=21320570; PubMed=11427521;  
 RA Murphy J.F., Fitzgerald D.J.;  
 RT "Vascular endothelial growth factor induces cyclooxygenase-dependent  
 RT proliferation of endothelial cells via the VEGF-2 receptor.";   
 RL FASEB J. 15:1667-1669(2001).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin. Neuropilin-1 binds isoforms VEGF-165 and VEGF-145.  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: VEGF121 is acidic and freely secreted.  
 CC VEGF165 is more basic, has heparin-binding properties and,  
 CC although a significant proportion remains cell-associated, most is  
 CC freely secreted. VEGF189 is very basic; it is cell-associated  
 CC after secretion and is bound avidly by heparin and the soluble  
 CC extracellular matrix, although it may be released as a soluble  
 CC form by heparin, heparinase or plasmin.  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event-Alternative splicing: Named isoforms=7;  
 CC Comment=Experimental confirmation may be lacking for some  
 CC isoforms;  
 CC Name=VEGF206;  
 CC IsoId=P15692-1; Sequence=Displayed;  
 CC Name=VEGF189;  
 CC IsoId=P15692-2; Sequence=VSP\_004622;

Query Match 96.4%; Score 133; DB 1; Length 222;  
 Best Local Similarity 96.2%; Pred. No. 7.7e-14;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGSEVPTEESNITWQIMRIKPH 26  
 DB 87 CNDGSEVPTEESNITWQIMRIKPH 112

RESULT 2  
 ID VEGA\_PIG STANDARD; PRT; 190 AA.  
 AC P49151; Q9GL52; Rel. 33, Last sequence update)  
 DT 01-FEB-1996 (Rel. 33, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Sus scrofa (Pig).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Suidae; Sus.  
 OX NCBI\_TaxID=9823;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC Tissue=Heart;  
 RX MEDLINE=95143284; PubMed=7841203;  
 RA Sharma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;  
 RT "Nucleotide sequence and expression of the porcine vascular endothelial growth factor".  
 RL Biochim. Biophys. Acta 1260:235-238 (1995).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RA Lee T., Cancy J.M.;  
 RT "PCR cloning of porcine cardiac vascular endothelial growth factor gene".  
 RL Submitted (NOV-2000) to the EMBL/GenBank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 CC EMBL; X81380; CAA57143.1; -  
 CC EMBL; AF318502; AAG3064.1; -  
 CC PIR; S52130; S52130.  
 DR HSSP; P15692; IVGH.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 KM Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KM Heparin-binding; Multigene family.  
 FT SIGNAL 1 26  
 FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.

FT DISULFID 51 93 BY SIMILARITY.  
 FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CARBOHYD 100 100 N-LINKED (GLCNAC... ) (POTENTIAL).  
 FT CONFLICT 102 102 T -> A (IN REF. 2).  
 SQ SEQUENCE 190 AA; 22368 MW; 04D408BD913047F CRC64;

Query Match 92.0%; Score 127; DB 1; Length 190;  
 Best Local Similarity 92.3%; Pred. No. 5.6e-13;  
 Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDGSEVPTEESNITWQIMRIKPH 26  
 DB 86 CNDGSEVPTEESNITWQIMRIKPH 111

RESULT 3  
 ID VEGA\_CANPA STANDARD; PRT; 214 AA.  
 AC Q9MTV3; Q9XSF3; Q9XSF4; Q9XSF5;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Canis familiaris (Dog).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.  
 OX NCBI\_TaxID=9615;  
 RN [1]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF-188).  
 RX MEDLINE=20125516; PubMed=10661874;  
 RA Scheidegger P., Weiglhofer W., Suarez S., Kaser-Holz B., Steiner R.,  
 RA Ballmer-Hofer K., Jausel R.;  
 RT "Vascular endothelial growth factor (VEGF) and its receptors in tumor-bearing dogs".  
 RL Biol. Chem. 380:1449-1454 (1999).  
 RN [2]  
 RP SEQUENCE FROM N.A. (ISOFORMS VEGF-188; VEGF-182 AND VEGF-164).  
 RC Tissue=Heart;  
 RA Jüngling L., Rognie R.S.;  
 RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=3;  
 CC Comment=Additional isoforms seem to exist;  
 CC Name=VEGF-188;  
 CC IsoId=Q9MYV3-1; Sequence=Displayed;  
 CC Name=VEGF-182;  
 CC IsoId=Q9MYV3-2; Sequence=VSP\_004617;  
 CC Name=VEGF-164;  
 CC IsoId=Q9MYV3-3; Sequence=VSP\_004615, VSP\_004616;  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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CC -----
CC EMBL; AJ133758; CAB246.1; -
CC EMBL; AF133250; AAD29684.1; -
CC EMBL; AF133249; AAD29683.1; -
CC EMBL; AF133248; AAD29682.1; -
CC HSSP; P15692; IVGH.
CC InterPro: IPR000072; PD_growth_factor.
CC Pfam; PF00341; PDGF_1.
CC ProDom; PD001629; PD_growth_factor; 1.
CC SMART; SM00141; PDGF_1.
CC PROSITE; PS00249; PDGF_1; 1.
CC PROSITE; PS50278; PDGF_2; 1.
CC Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
CC Heparin-binding; Alternative splicing; Multigene family.
CC SIGNAL 1 26
CC CHAIN 27 214
CC DISULFID 51 93
CC DISULFID 82 127
CC DISULFID 86 129
CC DISULFID 76 76
CC DISULFID 85 85
CC CARBOHYD -100 100
CC VASPLIC 140 140
CC VASPLIC 141 164
CC VASPLIC 159 164
CC CONFLICT 143 143
CC CONFLICT 161 161
CC SEQUENCE 214 AA; 25175 MW; 0AC980A158C44B27 CnC64;

Query Match 92.0%; Score 127; DB 1; Length 214;
Best Local Similarity 92.3%; Pred. No. 6.5e-13;
Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Oy 1 CNDGLSEVPTESNITQIMRIKH 26
Db 86 CNDGLCEVPTESNITQIMRIKH 111

RESULT 4
VEGA_MOUSE STANDARD; PRT; 214 AA.
AC 000731;
DT 01-APR-1993 (Rel. 25, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A. (ISOFORMS VEGF-1; VEGF-2 AND VEGF-3).
RX MEDLINE=92274860; PubMed=1592003;
RA Breier G., Albrecht U., Steier S., Risau W.;
RA "Expression of vascular endothelial growth factor during embryonic
RT angiogenesis and endothelial cell differentiation.";
RL Development 114:521-532(1992).
RN [2]
RP SEQUENCE FROM N.A. (ISOFORM VEGF-1).
RX MEDLINE=92355593; PubMed=1644816;
RA Claffey K.P., Wilkison W.O., Spiegelman B.M.;
RA "Vascular endothelial growth factor. Regulation by cell
RT differentiation and activated second messenger pathways.";
RL J. Biol. Chem. 267:16317-16322(1992).
RN [3]
RP SEQUENCE OF 1-3 FROM N.A.
RX MEDLINE=96216498; PubMed=8632007;

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RA Shima D.T., Kuroki M., Deutsch U., Ng Y., Adams A.P., D'Amore P.A.;
RT "The mouse gene for vascular endothelial growth factor. Genomic
RT structure, definition of the transcriptional unit, and
RT characterization of transcriptional and post-transcriptional
RT regulatory sequences.";
RL J. Biol. Chem. 271:3877-3883(1996).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: VEGF-1 and VEGF-2 are secreted while VEGF-3
CC remains cell-surface associated unless released by heparin.
CC -1- ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=3;
CC Name=VEGF-3; Synonyms=VEGF188;
CC IsoId=Q00731-1; Sequence=Displayed;
CC Name=VEGF-1; Synonyms=VEGF164;
CC IsoId=Q00731-2; Sequence=VSP_004626, VSP_004627;
CC Name=VEGF-2; Synonyms=VEGF120;
CC IsoId=Q00731-3; Sequence=VSP_004628;
CC -1- TISSUE SPECIFICITY: In developing embryos, expressed mainly in the
CC choroid plexus, paraventricular neuroepithelium, placenta and
CC kidney glomeruli. Also found in bronchial epithelium, adrenal
CC gland and in seminiferous tubules of testis. High expression of
CC VEGF continues in kidney glomeruli and choroid plexus in adults.
CC -1- DOMAIN: VEGF-3 contains a basic insert which acts as a cell
CC retention signal.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.sib-sib.ch/announce/
CC or send an email to license@sb-sib.ch).
CC -----
CC EMBL; S37052; AAB2252.1; -
CC EMBL; S38083; AAB2253.1; -
CC EMBL; S38100; AAB2254.1; -
CC EMBL; M95200; AAA0547.1; -
CC EMBL; U41883; -; NOT_ANNOTATED_CDS.
CC PIR; A44881; A44881.
CC PIR; B44881; B44881.
CC HSSP; P15692; VVPF.
CC MGD; MGI:103178; Vegfa.
CC InterPro: IPR000072; PD_growth_factor.
CC Pfam; PF00341; PDGF_1.
CC ProDom; PD001629; PD_growth_factor; 1.
CC SMART; SM00141; PDGF_1.
CC PROSITE; PS00249; PDGF_1; 1.
CC PROSITE; PS50278; PDGF_2; 1.
CC Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
CC Heparin-binding; Alternative splicing; Multigene family.
CC SIGNAL 1 26
CC CHAIN 27 214
CC DISULFID 51 93
CC DISULFID 82 127
CC DISULFID 86 129
CC DISULFID 76 76
CC DISULFID 85 85
CC CARBOHYD 100 100
CC VASPLIC 140 140
CC VASPLIC 141 164
CC VASPLIC 159 164
CC CONFLICT 117 118
CC -----
CC Missing (in isoform VEGF-1).
CC /FTid=VSP_004627.
CC Missing (in isoform VEGF-2).
CC /FTid=VSP_004628.
CC GE -> ER (IN REF. 2).

```

SQ SEQUENCE 214 AA; 25283 MW; B5540B51E4B86E17 CRC64;

Query Match 88.4%; Score 122; DB 1; Length 214;

Best Local Similarity 88.5%; Pred. No. 4,1e-12;

Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

OY 1 CNDEGLSEVPTEESNITWQIMRIKPH 26  
DB 86 CNDEALCEVPTSESNTWQIMRIKPH 111

## RESULT 5

VEGA\_SHEEP STANDARD; PRT; 146 AA.

AC P50412;  
DT 01-OCT-1996 (Rel. 34, Last sequence update)  
DT 01-OCT-1996 (Rel. 34, Last sequence update)  
DT 28-FEB-2003 (Rel. 41, Last annotation update)  
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Ovis aries (Sheep).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovidae; Caprinae; Ovis.  
OX NCBI\_TaxID=9940;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Kidney;  
RX MEDLINE=971117958; PubMed=8958842;  
RA Redner D.A., Dai Y., Li J., Charnock-Jones D.S., Smith S.K., Reynolds L.P., Moor R.M.;  
RT "Characterization and expression of vascular endothelial growth factor (VEGF) in the ovine corpus luteum";  
RL J. Reprod. Fert. 108:157-165(1996).  
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (by similarity).  
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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CC -----  
DR EMBL; X89506; CA61677.1; -.  
DR PIR; S57956; S57956.  
DR HSSP; P15692; 1VPG.  
DR InterPro; IPR000072; PD\_growth\_factor.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PD\_growth\_factor; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal; Heparin-binding; Multigene family.  
KM  
FT SIGNAL 1  
FT CHAIN 26  
FT DISULFID 27 146  
FT DISULFID 51 93  
FT DISULFID 82 127  
FT DISULFID 86 129  
FT DISULFID 76 76  
FT DISULFID 85 85  
FT CARBOHYD 100 100  
SEQUENCE 146 AA; 17247 MW; 4E792CB557F91760 CRC64;

Query Match 87.7%; Score 121; DB 1; Length 146;

Best Local Similarity 88.5%; Pred. No. 3.8e-12;

Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

OY 1 CNDEGLSEVPTEESNITWQIMRIKPH 26  
DB 86 CNDESLCEVPTSEFNITWQIMRIKPH 111

## RESULT 6

VEGA\_CAVPO STANDARD; PRT; 164 AA.

AC P26617;  
DT 01-AUG-1992 (Rel. 23, Created)  
DT 01-AUG-1992 (Rel. 23, Last sequence update)  
DT 28-FEB-2003 (Rel. 41, Last annotation update)  
DE Vascular endothelial growth factor A (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Cavia porcellus (Guinea pig).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Hystriognath; Caviidae; Cavia.  
OX NCBI\_TaxID=10141;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Bile duct;  
RA Beree B.;  
RL Submitted (JAN-1992) to the EMBL/GenBank/DBJ databases.  
CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial cell growth. Induces endothelial proliferation and vascular permeability (By similarity).  
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).  
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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CC -----  
DR EMBL; M84230; AAA37057.1; -.  
DR HSSP; P15692; 1VGH.  
DR InterPro; IPR000072; PD\_growth\_factor.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PD\_growth\_factor; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein.  
KM  
FT DISULFID 25 67  
FT DISULFID 56 101  
FT DISULFID 60 103  
FT DISULFID 50 50  
FT DISULFID 59 59  
FT CARBOHYD 74 74  
SEQUENCE 164 AA; 19330 MW; 9EB86A81A9D5DCA4 CRC64;

Query Match 87.7%; Score 121; DB 1; Length 164;

Best Local Similarity 88.5%; Pred. No. 4.3e-12;

Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

OY 1 CNDEGLSEVPTEESNITWQIMRIKPH 26  
DB 60 CNDESLCEVPTSEFNITWQIMRIKPH 85

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RESULT 7
VEGA_BOVIN STANDARD; PRT; 190 AA.
ID_VEGA_BOVIN
AC P15691;
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Kuminantia; Pecora; Bovidae; Bovidae; Bovinae; Bos.
OC NCBI_TaxID=9913;
OX [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-47.
RX MEDLINE=90069608; PubMed=2479986;
RA Leung D.W., Cachianes G., Kiang W.-J., Goeddel D.V., Ferrara N.;
RT "Vascular endothelial growth factor is a secreted angiogenic mitogen.";
RL Science 246:1306-1309 (1989).
RN [2]
RP SEQUENCE OF 27-190 FROM N.A. (ISOFORMS ALPHA AND BETA).
RX MEDLINE=90121225; PubMed=2610687;
RA Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J., Lau K., Crisp T., Fiddes J.C., Abraham J.A.;
RT "Vascular endothelial growth factor: a new member of the platelet-derived growth factor gene family.";
RL Biochem. Biophys. Res. Commun. 165:1198-1206 (1989).
RN [3]
RP SEQUENCE OF 27-31.
RX MEDLINE=89286596; PubMed=2735925;
RA Ferrara N., Henzel W.J.;
RT "Pituitary follicular cells secrete a novel heparin-binding growth factor specific for vascular endothelial cells.";
RL Biochem. Biophys. Res. Commun. 161:851-858 (1989).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (by similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (by similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (by similarity).
CC -1- ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=2;
CC Name=Alpha;
CC IsoId=P15691-1; Sequence=Displayed;
CC Name=Beta;
CC IsoId=P15691-2; Sequence=VSP_004613; VSP_004614;
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
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CC -----
CC EMBL; M32976; AAA30502.1; -
CC EMBL; M31836; AAA30804.1; -
CC EMBL; M33750; AAA30805.1; -
CC PIR; B40080; B40080.
CC HSSP; P15692; 1VGH.
CC InterPro: IPR000072; PD_growth_factor.
CC Pfam; PF00341; PDGF; 1.
CC ProDom; PD001629; PD_growth_factor; 1.
CC SMART; SM00141; PDGF; 1.

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DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Alternative splicing; Multigene family.
FT SIGNAL 1 26
FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT CARBOHD 85 85 INTERCHAIN (BY SIMILARITY).
FT VASAPLIC 100 100 N-LINKED (GLCNAc. . .) (POTENTIAL).
FT VASAPLIC 139 183 Missing (in isoform Beta).
FT VASAPLIC 184 184 R -> K (in isoform Beta).
FT VASAPLIC 184 184 /Ftd=VSP_004613.
FT SEQUENCE 190 AA; 22310 MW; EDBP903E46E24789 CRC64;
FT /Ftd=VSP_004614.
SQ
Query Match 87.7%; Score 121; DB 1; Length 190;
Best Local Similarity 88.5%; Pred. No. 5.2e-12;
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;
QY 1 CNDGLESVPREBSNITMQRKPH 26
Db 86 CNDGSLCVPTEEFNITMQRKPH 111
RESULT 8
VEGA_HORSE STANDARD; PRT; 190 AA.
ID_VEGA_HORSE
AC Q9GKR0;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Equus caballus (Horse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
CC NCBI_TaxID=9796;
RN [1]
RP SEQUENCE FROM N.A.
RA Miura N., Miura K., Kawahara K., Nakashima M., Fukumitsu S., Kawabata H., Uto N., Oka T., Maruyama I., Sakamoto H.;
RT "Cloning of cDNA and high-level expression of equine vascular endothelial growth factor (VEGF).";
RL Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial cell growth. Induces endothelial proliferation and vascular permeability (by similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (by similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (by similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
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CC -----
CC EMBL; AB053350; BAB20890.1; -
CC HSSP; P15692; 1VGH.
CC InterPro: IPR000072; PD_growth_factor.
CC Pfam; PF00341; PDGF; 1.
CC ProDom; PD001629; PD_growth_factor; 1.
CC SMART; SM00141; PDGF; 1.
CC PROSITE; PS00249; PDGF_1; 1.

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DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Mesocricetus auratus (Golden hamster).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;  
 CC Mesocricetus  
 CC NCBI\_TaxID=10036;  
 CC (1)  
 RN SEQUENCE FROM N.A.  
 RC TISSUE=Decidua, and Embryo;  
 RX MEDLINE=99311285; PubMed=10382276;  
 RA Yi X.U., Jiang H.Y., Lee K.K., Tang P.L., Chow P.H.;  
 RT "Expression of vascular endothelial growth factor (VEGF) and its receptors during embryonic implantation in the golden hamster (Mesocricetus auratus).";  
 RL Cell Tissue Res. 296:339-349(1999).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 CC EMBL: AF063013; AAK00049.1; -.  
 CC DR HSSP: P15692; 1VGH.  
 CC DR InterPro: IPR000072; PD\_growth\_factor.  
 CC DR Pfam: PF00341; PDGF\_1.  
 CC DR ProDom: PD001529; PD\_growth\_factor; 1.  
 CC DR SMART: SM00141; PDGF\_1.  
 CC DR PROSITE: PS00249; PDGF\_1; 1.  
 CC DR PROSITE: PS00278; PDGF\_2; 1.  
 CC KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KW Heparin-binding; Multigene family.  
 FT SIGNAL 1 26 BY SIMILARITY.  
 FT CHAIN 1 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 FT DISULFID 51 93 BY SIMILARITY.  
 FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CAROYHD 100 100 N-LINKED (GLCNAC... ) (POTENTIAL).  
 SQ SEQUENCE 190 AA; 22276 MW; F00C5A8EA79A65F CRC64;  
 Query Match 84.1%; Score 116; DB 1; Length 190;  
 Best Local Similarity 80.8%; Pred. No. 3.3e-11;  
 Matches 21; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

AC P52582; Q91420;  
 DT 01-OCT-1996 (Rel. 34, Created)  
 DT 15-JUL-1998 (Rel. 36, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Gallus gallus (Chicken), and  
 OS Coturnix coturnix japonica (Japanese quail).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;  
 CC Gallus  
 CC NCBI\_TaxID=9031, 93934;  
 CC (1)  
 RN SEQUENCE FROM N.A.  
 RC SPECIES=Chicken; TISSUE=Heart;  
 RA Takahashi T.;  
 RT "Chick embryonic ventricular myocytes VEGF";  
 RL Submitted (FEB-1998) to the EMBL/GenBank/DBJ databases.  
 RN (2)  
 RN SEQUENCE FROM N.A. (ISOFORMS VEGF-190; VEGF-166 AND VEGF-146).  
 RC SPECIES=C.C.japonica; TISSUE=Embryo;  
 RX MEDLINE=96005007; PubMed=7556923;  
 RX Flamme I., von Reutern M., Drexler H.C., Syed-Ali S., Risau W.;  
 RA "Overexpression of vascular endothelial growth factor in the avian embryo induces hypervascularization and increased vascular permeability without alterations of embryonic pattern formation.";  
 RT Dev. Biol. 171:399-414(1995).  
 RL Dev. Biol. 171:399-414(1995).  
 RN (3)  
 RN SEQUENCE OF 60-187 FROM N.A. (ISOFORMS VEGF-190 AND VEGF-166).  
 RC SPECIES=C.C.japonica;  
 RX MEDLINE=95301109; PubMed=7781909;  
 RA Flamme I., Breier G., Risau W.;  
 RT "Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (Flk-1) are expressed during vasculogenesis and vascular differentiation in the quail embryo.";  
 RL Dev. Biol. 169:699-712(1995).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=3;  
 CC Comment=Additional isoforms seem to exist;  
 CC Name=VEGF-190;  
 CC IsoId=P52582-1; Sequence=Displayed;  
 CC Name=VEGF-166;  
 CC IsoId=P52582-2; Sequence=VSP\_004633, VSP\_004634;  
 CC Note=Has been shown to exist only in quail so far;  
 CC Name=VEGF-146;  
 CC IsoId=P52582-3; Sequence=VSP\_004635, VSP\_004636;  
 CC Note=Has been shown to exist only in quail so far;  
 CC -1- TISSUE SPECIFICITY: Abundantly and equally expressed in heart and liver. In kidney glomeruli, brain and yolk sac, VEGF-166 is 5- to 10-times more abundant than VEGF-190.  
 CC -1- DEVELOPMENTAL STAGE: VEGF-166 is expressed early at day 1 and is upregulated during gastrulation. Expression of VEGF-190 is detectable only from day 2.  
 CC -1- DOMAIN: VEGF-190 contains a basic insert which acts as a cell retention signal.  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----

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CC -----
DR EMBL; AB011078; BAA24925.1; -.
DR EMBL; S79680; AAB35371.1; -.
DR HSSP; P15692; 1VGH.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
DR Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KM Heparin-binding; Alternative splicing; Multigene family.
FT SIGNAL 1
FT CHAIN 1
FT DISULFID 27 216
FT DISULFID 52 94
FT DISULFID 83 128
FT DISULFID 87 130
FT DISULFID 77 77
FT DISULFID 86 86
FT CARBOHYD 101 101
FT VARSPPLIC 142 142
FT VARSPPLIC 143 166
FT VARSPPLIC 166 166
FT VARSPPLIC 166 166
FT VARSPPLIC 167 210
FT VARSPPLIC 167 210
SQ SEQUENCE 216 AA; 25203 MW; 82B669C2F6FC6DA7 CRC64;

Query Match
Best Local Similarity 69.6%; Score 96; DB 1; Length 216;
Matches 17; Conservative 3; Mismatches 6; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTESNITMOMIKPH 26
DB 87 CGDEGLCVPVVYVYVMEIRIKPH 112

RESULT 12
PLOG_MOUSE
ID PLOG_MOUSE STANDARD; PRT; 158 AA.
AC P49764;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Placenta growth factor precursor (PLOG).
GN PGF OR PLOG.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxId=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Heart;
RX MEDLINE=97059399; PubMed=8903720;
RA Dipalma T., Tucci M., Russo G., Maglione D., Lago C.T., Romano A.,
RA Saccone S., della Valle G., de Gregorio L., Dragani T.A.,
RA Vigiiletto G., Peraldo M.G.;
RT "The placenta growth factor gene of the mouse.";
RL Mamm. Genome 7:6-12(1996).
[2]
RP SEQUENCE FROM N.A.
RC STRAIN=NIH Swiss;
RX MEDLINE=98065381; PubMed=9401819;
RA Achen M.G., Gad J.M., Stacker S.A., Wilks A.F.;
RT "Placenta growth factor and vascular endothelial growth factor are
co-expressed during early embryonic development.";
RL Growth Factors 15:69-80(1997).
-1- FUNCTION: Growth factor active in angiogenesis, and endothelial
cell growth, stimulating their proliferation and migration. It
binds to receptor VEGFR-1/PLT1 (By similarity).
-1- SUBUNIT: Antiparallel homodimer; disulfide-linked. Also found as

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CC heterodimer with VEGF/VEGF-A (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted (By similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
DR EMBL; X80171; CAA56453.1; -.
DR EMBL; X96793; CAA65587.1; -.
DR HSSP; P49763; 1FZV.
DR MGI; MGI:105095; Pgf.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
DR Angiogenesis; Mitogen; Growth factor; Glycoprotein; Signal.
KM Angiogenesis; Mitogen; Growth factor; Glycoprotein; Signal.
FT SIGNAL 1
FT CHAIN 1
FT DISULFID 19 158
FT DISULFID 48 90
FT DISULFID 79 125
FT DISULFID 83 127
FT DISULFID 73 73
FT DISULFID 82 82
FT CARBOHYD 29 29
FT CARBOHYD 30 30
FT CARBOHYD 97 97
SQ SEQUENCE 158 AA; 17876 MW; F1612BBA0790438 CRC64;

Query Match
Best Local Similarity 60.9%; Score 84; DB 1; Length 158;
Matches 15; Conservative 5; Mismatches 6; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTESNITMOMIKPH 26
DB 83 CGDEGLHCVPPIKTANTIMQIKIPN 108

RESULT 13
VEGH_ORFN2
ID VEGH_ORFN2 STANDARD; PRT; 133 AA.
AC P52584;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Vascular endothelial growth factor homolog precursor.
GN A2R.
OS Orf virus (strain NZ2) (OV NZ-2).
OC Viruses; dsDNA viruses, no RNA stage; Poxviridae; Chordopoxvirinae;
OC Poxpoxvirus.
OX NCBI_TaxId=10259;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=94076465; PubMed=8254780;
RA Lytle D.J., Frazer K.M., Fleming S.B., Mercer A.A., Robinson A.J.;
RT "Homologs of vascular endothelial growth factor are encoded by the
poxvirus orf virus.";
RL J. Virol. 68:84-92(1994).
-1- FUNCTION: INDUCES ENDOTHELIAL PROLIFERATION.
-1- SUBUNIT: Homodimer; disulfide-linked (By similarity).
-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----

DR EMBL; S67520; AAB29220.2; -

DR HSSP; P15692; 1VPP.

DR InterPro; IPR000072; PD\_growth\_factor.

DR Pfam; PF00341; PDGF\_1.

DR ProDom; PD001629; PD\_growth\_factor; 1.

DR SMART; SM00141; PDGF\_1.

DR PROSITE; PS00249; PDGF\_1; 1.

DR PROSITE; PS50278; PDGF\_2; 1.

DR Mitogen; Growth factor; Glycoprotein; Signal.

FT SIGNAL 1 20

FT CHAIN 21 133

FT DISULFID 36 78

FT DISULFID 67 112

FT DISULFID 71 114

FT DISULFID 61 61

FT DISULFID 70 70

FT CARBOHYD 85 85

SEQUENCE 133 AA; 14715 MW; 917C0F688303C64; (POTENTIAL).

Query Match 57.2%; Score 79; DB 1; Length 133;  
Best Local Similarity 61.9%; Pred. No. 1.8e-05;  
Matches 13; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTESNITMQLM 21

DB 71 CNDEGLSVPTESNITMQLM 91

RESULT 14

PLGF\_RAT STANDARD; PRT; 158 AA.

AC 063334;

DT 28-FEB-2003 (Rel. 41, Created)

DT 28-FEB-2003 (Rel. 41, Last sequence update)

DT 15-SEP-2003 (Rel. 42, Last annotation update)

DE Placenta growth factor precursor (PLGF).

GN PLGF.

OS Rattus norvegicus (Rat).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

OX NCBI\_TaxId=10116;

RN [1]

RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.

RX MEDLINE=95221439; PubMed=7706320;

RA Disalvo J., Bayne M.L., Conn G., Kwok P.W., Trivedi P.G., Soderman D.D., Palisi T.M., Sullivan K.A., Thomas K.A.;

RT "Purification and characterization of a naturally occurring vascular endothelial growth factor, placenta growth factor heterodimer.";

RL J. Biol. Chem. 270:7717-7723(1995).

CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial cell growth, stimulating their proliferation and migration. It binds to receptor VEGFR-1/Flt1 (By similarity).

CC -1- SUBUNIT: Antiparallel homodimer; disulfide-linked. Also found as heterodimer with VEGF/VEGF-A.

CC -1- SUBCELLULAR LOCATION: Secreted (By similarity).

CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.

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CC -----

DR EMBL; L40030; AA97426.1; -

DR PIR; A56125; A56125.

DR HSSP; P49763; 1F2V.

DR InterPro; IPR000072; PD\_growth\_factor.

DR Pfam; PF00341; PDGF\_1.

DR ProDom; PD001629; PD\_growth\_factor; 1.

DR SMART; SM00141; PDGF\_1.

DR PROSITE; PS00249; PDGF\_1; 1.

DR PROSITE; PS50278; PDGF\_2; 1.

DR Angiogenesis; Mitogen; Growth factor; Glycoprotein; Signal.

FT SIGNAL 1 23

FT CHAIN 24 158

FT DISULFID 48 90

FT DISULFID 79 125

FT DISULFID 73 73

FT DISULFID 82 82

FT CARBOHYD 29 29

FT CARBOHYD 30 30

FT CARBOHYD 97 97

SEQUENCE 158 AA; 17681 MW; B477137A82E1589 CRC64;

Query Match 55.1%; Score 76; DB 1; Length 158;  
Best Local Similarity 53.8%; Pred. No. 6.8e-05;  
Matches 14; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTESNITMQLMIRKPH 26

DB 83 CGDEGLHCVALKTANITMQLIKIPP 108

RESULT 15

PLGF\_HUMAN STANDARD; PRT; 221 AA.

AC P49763; Q07101; Q9BV78; Q9Y6S8;

DT 01-OCT-1996 (Rel. 34, Created)

DT 28-FEB-2003 (Rel. 41, Last sequence update)

DT 15-SEP-2003 (Rel. 42, Last annotation update)

DE Placenta growth factor precursor (PLGF).

GN PGF OR PLGF.

OS Homo sapiens (Human).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.

OX NCBI\_TaxId=9606;

RN [1]

RP SEQUENCE FROM N.A. (ISOFORM PLGF-1).

RC TISSUE=Placenta;

RX MEDLINE=92021031; PubMed=1924389;

RA Maglione D., Guerriero V., Viglietto G., Delili-Bovi P., Persico M.G.;

RT "Isolation of a human placenta cDNA coding for a protein related to the vascular permeability factor.";

RL Proc. Natl. Acad. Sci. U.S.A. 88:9267-9271(1991).

RN [2]

RP SEQUENCE FROM N.A. (ISOFORM PLGF-2).

RC TISSUE=Placenta;

RX MEDLINE=94198032; PubMed=8148155;

RA Hauser S.D., Weich H.A.;

RT "A heparin-binding form of placenta growth factor (PLGF-2) is expressed in human umbilical vein endothelial cells and in placenta.";

RL Growth Factors 9:259-268(1993).

RN [3]

RP PARTIAL SEQUENCE FROM N.A. (ISOFORM PLGF-2).

RX MEDLINE=93205407; PubMed=7681160;

RA Maglione D., Guerriero V., Viglietto G., Ferraro M.G., Aprelikova O., Altalto K., del Vecchio S., Lei K.-J., Chou J.Y., Persico M.G.;

RT "Two alternative mRNAs coding for the angiogenic factor, placenta growth factor (PLGF), are transcribed from a single gene of chromosome 8:925-931(1993).

RL Oncogene 8:925-931(1993).

RN [4]

RP SEQUENCE FROM N.A. (ISOFORM PLGF-3).

RC TISSUE=Placenta;

RX MEDLINE=97350807; PubMed=9207183;

RA Cao Y., Ji W.-R., Qi P., Rosin A., Cao Y.;

RT "Placenta growth factor: identification and characterization of a novel isoform generated by RNA alternative splicing.";

RL Biochem. Biophys. Res. Commun. 235:493-498(1997).  
 RP [5]  
 RX SEQUENCE FROM N.A. (ISOFORM PLGF-1).  
 RA PubMed=12508121;  
 RA Heilig R., Eckenberg R., Petit J.-L., Ponknechten N., Da Silva C.,  
 RA Catolico L., Levy M., Barbe V., de Berradins V., Ureia-Vidal A.,  
 RA Pelletier E., Vico V., Anthonard V., Rowen L., Madan A., Qin S.,  
 RA Sun H., Du H., Pepin K., Alliguenave F., Robert C., Craud C.,  
 RA Bruls T., Jallion O., Friedlander L., Samson G., Brotier P.,  
 RA Cure S., Segreus B., Anterie F., Samain S., Crepeau H., Abbasi N.,  
 RA Aiaich N., Boscus D., Dickhoff R., Dore M., Dubois I., Friedman C.,  
 RA Guyvenoux M., James R., Madan A., Mailey-Bestrada B., Mangenot S.,  
 RA Martin N., Menard M., Oztas S., Ratcliffe A., Shaffer T., Trask B.,  
 RA Vachier B., Bellemere C., Belser C., Bernard-Gonnet M.,  
 RA Bachelier-Mavel D., Bouvard M., Briez-Silla S., Combette S.,  
 RA Dufosse-Laurent V., Ferron C., Lechaplais C., Louesse C., Museler D.,  
 RA Magdelnat G., Pateau E., Petit E., Strivain-Trukniewicz P., Trybou A.,  
 RA Vega-Czarny N., Bataille E., Bluet E., Bordenais I., Dubois M.,  
 RA Dumont C., Guerin T., Hatfay S., Hammadi R., Munga J., Pellouin V.,  
 RA Robert D., Wunderle E., Gauguet G., Roy A., Sainte-Marthe L.,  
 RA Verrier J., Verdier-Discala C., Hillier L., Fulton L., McPherson J.,  
 RA Matsuda F., Wilson R., Scarpelli C., Gyapay G., Wincker P., Saurin W.,  
 RA Quetier F., Waterston R., Hood L., Weissbach J., 14.";  
 RL "The DNA sequence and analysis of human chromosome 14.";  
 RL Nature 421:601-607(2003).  
 [6]  
 RP SEQUENCE FROM N.A. (ISOFORM PLGF-2).  
 RX TISSUE=Muscle, and Placenta;  
 RA MEDLINE=22388257, PubMed=12477932;  
 RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,  
 RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,  
 RA Altschul S.F., Zeeberg B., Buetow K.H., Shafert C.F., Bhat N.K.,  
 RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,  
 RA Diatchenko L., Matsuda K., Farmer A.A., Rubin G.M., Hong L.,  
 RA Stapleton M., Soares M.B., Bonaldo M.F., Caaveira T.L., Schetz T.E.,  
 RA Brownstein M.V., Ussid T.B., Toshiyuki S., Carninci P., Prange C.,  
 RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Millhys S.J.,  
 RA Bosak S.A., McSwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,  
 RA Richardson S., Morley K.C., Hale S.C., Garcia A.M., Gay L.J., Hultk S.W.,  
 RA Villalón D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,  
 RA Fahy J., Helton E., Kettelman M., Madan A., Rodrigues S., Sanchez A.,  
 RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,  
 RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,  
 RA Rodriguez A.C., Greenwood J., Schmutz J., Myers R.M.,  
 RA Butterfield V.S.N., Krzywinski M.I., Skalska U., Smalls D.E.,  
 RA Schnerch A., Schein J.E., Jones S.J.M., Maira M.A.,  
 RL "Generation and initial analysis of more than 15,000 full-length  
 RL human and mouse cDNA sequences.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).  
 [7]  
 RP CHARACTERIZATION, AND SEQUENCE OF 19-24.  
 RX MEDLINE=95014370, PubMed=7929268;  
 RA Park J.E., Chen H.H., Winer J., Houck K.A., Ferrara N.,  
 RL "Placenta growth factor. Potentiation of vascular endothelial growth  
 RL factor bioactivity, in vitro and in vivo, and high affinity binding  
 RL to Flt-1 but not to Flk-1/KDR.";  
 RL J. Biol. Chem. 269:25646-25654(1994).  
 [8]  
 RP X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS) (ISOFORM PLGF-1).  
 RX MEDLINE=21192270, PubMed=11069911;  
 RA Iyer S., Leonidas D.D., Swaminathan G.J., Maglione D., Battisti M.,  
 RA Tucci M., Persico M.G., Acharya K.R.,  
 RL "The crystal structure of human placenta growth factor-1 (PlGF-1), an  
 RL angiogenic protein, at 2.0 Å resolution.";  
 RL J. Biol. Chem. 276:12153-12161(2001).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial  
 CC cell growth, stimulating their proliferation and migration. It  
 CC binds to receptor VEGFR-1/Flt1. PLGF-2 binds neuropilin-1 and 2 in  
 CC a heparin-dependent manner.  
 CC -1- SUBUNIT: Antiparallel homodimer; disulfide-linked. Also found as  
 CC heterodimer with VEGF/VEGF-A. PLGF-3 is found both as homodimer  
 CC and as monomer.  
 CC -1- SUBCELLULAR LOCATION: The three forms are secreted but PLGF-2

CC appears to remain cell attached unless released by heparin.  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event-Alternative splicing; Named isoforms=3;  
 CC Name=PLGF-3;  
 CC IsoId=P49763-1; Sequence=Displayed;  
 CC Name=PLGF-1; Synonyms=PLGF-131;  
 CC IsoId=P49763-2; Sequence=VSP\_004644;  
 CC Name=PLGF-2; Synonyms=PLGF-152;  
 CC IsoId=P49763-3; Sequence=VSP\_004644; VSP\_004645;  
 CC -1- TISSUE SPECIFICITY: While the three forms are present in most  
 CC placental tissues, the PLGF-2 is specific to early (8 week)  
 CC placenta and only PLGF-1 is found in the colon and mammary  
 CC carcinomas.  
 CC -1- DOMAIN: PLGF-2 contains a basic insert which acts as a cell  
 CC retention signal.  
 CC -1- PTM: N-GLYCOSYLATED.  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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 CC -----  
 CC EMBL: X54936; CAA38698.1; -;  
 CC EMBL: S72960; AAB30462.2; -;  
 CC EMBL: S57152; AAB25832.2; ALT SEQ.  
 CC EMBL: AC006530; AAD30179.1; -;  
 CC EMBL: BC001422; AAH01422.1; -;  
 CC EMBL: BC007789; AAH07789.1; -;  
 CC EMBL: BC007255; AAH07255.1; -;  
 CC EMBL: A18411; CAA01393.1; -;  
 CC PIR: A41236; A41236.  
 CC PDB: 1PZV; 09-MAY-01.  
 CC Genew; HGNC:8893; PGF.  
 CC MIM: 601121; -;  
 CC GO: GO:0008083; F: growth factor activity; TAS.  
 CC GO: GO:0007267; P: cell-cell signaling; TAS.  
 CC GO: GO:0008284; P: positive regulation of cell proliferation; TAS.  
 CC GO: GO:0007165; P: signal transduction; TAS.  
 CC InterPro: IPR000072; PD\_growth\_factor.  
 CC Pfam: PF00341; PDGF\_1.  
 CC ProDom: PD001629; PD\_growth\_factor; 1.  
 CC SMART: SM00141; PDGF\_1.  
 CC PROSITE: PS00249; PDGF\_1; 1.  
 CC PROSITE: PS0278; PDGF\_2; 1.  
 CC Angiogenesis; Mitogen; Growth; Signal;  
 CC Heparin-binding; Alternative splicing; 3D-structure.  
 CC SIGNAL 1 18  
 CC CHAIN 1 221  
 CC DOMAIN 193 213 PLACENTA GROWTH FACTOR.  
 CC DISULFID 52 94 HEPARIN-BINDING (PROBABLE).  
 CC DISULFID 83 128  
 CC DISULFID 87 130  
 CC DISULFID 77 77  
 CC DISULFID 86 86 INTERCHAIN.  
 CC CARBOHYD 33 33 N-LINKED (GLCNAC. . .) (POTENTIAL).  
 CC CARBOHYD 101 101 N-LINKED (GLCNAC. . .) (POTENTIAL).  
 CC VARSPLIC 132 203 Missing (in isoform PLGF-1 and isoform  
 CC PLGF-2)  
 CC /FTId=VSP\_004644.  
 CC R->RRRPRKGRKRRKRPPTDCHL (in isoform  
 CC PLGF-2).  
 CC /FTId=VSP\_004645.  
 CC N->D (in REF. 2).  
 CC CONFLICT 91 91  
 CC STRAND 40 41  
 CC HELIX 43 50  
 CC STRAND 51 51  
 CC STRAND 53 60  
 CC TURN 61 61  
 CC HELIX 62 64

FT	STRAND	73	74
FT	STRAND	77	84
FT	STRAND	86	86
FT	TURN	90	91
FT	STRAND	92	108
FT	TURN	111	112
FT	STRAND	116	132
SQ	SEQUENCE	221 AA;	24788 MW; D364C6A73C1C6987 CRC64;

Query Match 54.3%; Score 75; DB 1; Length 221;  
 Best Local Similarity 50.0%; Pred. No. 0.00015;  
 Matches 12; Conservative 6; Mismatches 6; Indels 0; Gaps 0;

OY	1	CNDEGLASVPTESNITMOIMRIK	24
Db	87	CGDENLHCVPVETANVTMOLEKIR	110

Search completed: January 30, 2004, 11:41:06  
 Job time : 7 secs

GenCore version 5.1.6  
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## OM protein - protein search, using sw model

Run on: January 30, 2004, 11:33:38 ; Search time 26.9333 seconds  
(without alignments)  
249.110 Million cell updates/sec

Title: US-09-266-543-7

Perfect score: 138  
Sequence: 1 CNDEGLSVPTEESNITQIMRIKPH 26

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 830525 seqs, 258052604 residues

Total number of hits satisfying chosen parameters: 830525

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

## Database :

SPTREMBL\_23:\*  
1: sp\_archaea:\*  
2: sp\_bacteria:\*  
3: sp\_fungi:\*  
4: sp\_human:\*  
5: sp\_invertebrate:\*  
6: sp\_mammal:\*  
7: sp\_mhc:\*  
8: sp\_organelle:\*  
9: sp\_phage:\*  
10: sp\_plant:\*  
11: sp\_rodent:\*  
12: sp\_virus:\*  
13: sp\_vertebrate:\*  
14: sp\_unclassified:\*  
15: sp\_virus:\*  
16: sp\_bacteriophage:\*  
17: sp\_archaeop:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	133	96.4	126	6	Q9BDP7 macaca mui
2	133	96.4	191	4	Q96KJ0 Q96KJ0 homo sapien
3	133	96.4	191	4	Q96L82 Q96L82 homo sapien
4	133	96.4	191	4	Q95N85 Q95N85 macaca fasc
5	127	92.0	65	6	Q8M1N0 Q8M1N0 capra hircu
6	127	92.0	109	6	Q8M1N1 Q8M1N1 capra hircu
7	127	92.0	124	6	Q9GK00 Q9GK00 callithrix
8	127	92.0	124	6	Q8SP29 Q8SP29 mus scrofa
9	127	92.0	184	6	Q8HY70 Q8HY70 muscra vis
10	127	92.0	189	6	Q95IQ4 Q95IQ4 felis silve
11	122	88.4	127	6	Q8WMO4 Q8WMO4 sus scrofa
12	122	88.4	190	11	Q9QX39 Q9QX39 spialax leuc
13	121	87.7	78	6	Q9N1S2 Q9N1S2 capreolus c
14	121	87.7	118	6	Q9MZB1 Q9MZB1 ovis aries
15	121	87.7	123	6	Q9N1S1 Q9N1S1 capreolus c
16	121	87.7	128	6	Q8SP15 Q8SP15 equus cabal

17	121	87.7	131	6	Q8MJ86 Q8MJ86 capreolus c
18	121	87.7	190	6	Q77643 Q77643 ovis aries
19	121	87.7	190	11	Q91ZE1 Q91ZE1 rattus norv
20	120	87.0	68	6	Q97500 Q97500 oryctolagus
21	120	87.0	75	6	Q18843 Q18843 oryctolagus
22	116	84.1	142	11	Q9ER16 Q9ER16 mesocricetu
23	109	79.0	148	13	Q42571 Q42571 xenopus lae
24	109	79.0	194	13	Q42572 Q42572 xenopus lae
25	92	66.7	132	12	Q9YMF3 Q9YMF3 orf virus
26	92	66.7	144	13	Q73822 Q73822 brachydanio
27	92	66.7	188	13	Q73682 Q73682 brachydanio
28	87	63.0	141	11	Q70123 Q70123 mus musculu
29	83	60.1	110	11	Q88911 Q88911 rattus norv
30	83	60.1	113	6	Q8M120 Q8M120 ovis aries
31	67	48.6	188	4	Q8TEV2 Q8TEV2 homo sapien
32	65	47.1	108	6	Q8HY75 Q8HY75 ovis aries
33	64	46.4	146	13	Q90X23 Q90X23 bothrops ja
34	60	43.5	146	13	Q90X24 Q90X24 bothrops in
35	51	37.0	385	16	Q8X4W2 Q8X4W2 escherichia
36	51	37.0	385	16	Q8CVN7 Q8CVN7 escherichia
37	51	37.0	855	15	Q73344 Q73344 human immun
38	50.5	36.6	292	11	Q8CD60 Q8CD60 mus musculu
39	50	36.2	830	3	Q9Y774 Q9Y774 schizosacch
40	49	35.5	308	10	Q9T0G3 Q9T0G3 arabidopsis
41	49	35.5	364	10	Q9LV67 Q9LV67 arabidopsis
42	49	35.5	397	10	Q8LCQ2 Q8LCQ2 arabidopsis
43	47.5	34.4	314	5	Q8MP89 Q8MP89 taenia soli
44	47	34.1	137	10	Q8LD26 Q8LD26 arabidopsis
45	47	34.1	140	10	Q9CTJ7 Q9CTJ7 arabidopsis

## ALIGNMENTS

RESULT 1  
Q9BDP7 ID Q9BDP7 PRELIMINARY; PRT; 126 AA.

AC Q9BDP7; 01-JUN-2001 (TREMBLrel. 17, Last sequence update)  
DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)  
DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
DE Vascular endothelial growth factor (Fragment).  
OS Macaca mulatta (rhesus macaque).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
OC Cercopithecinae; Macaca.  
OX NCBI\_TaxID=9544;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Hazard T.M., Nayak N.R., Jia Y., Stouffer R.L.;  
RT Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.  
RL EMBL; AF39737; AAK6379.1; -.  
DR HSSP; P49763; 1PZV.  
DR InterPro; IPR000072; PD\_growth\_factor.  
DR Pfam; PF00341; PDGF\_1; PD\_growth\_factor.  
DR ProDom; PD001629; PD\_growth\_factor; 1.  
DR SMART; SM00141; PDGF\_1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS00278; PDGF\_2; 1.  
FT NON\_TER 1  
FT NON\_TER 126  
SQ SEQUENCE 126 AA; 14559 MW; 1175F2386A83BCF CRC64;

Query Match 96.4%; Score 133; DB 6; Length 126;  
Best Local Similarity 96.2%; Pred. No. 2e-13;  
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTEESNITQIMRIKPH 26  
DB 80 CNDEGLSVPTEESNITQIMRIKPH 105

## RESULT 2

Q96KJ0 PRELIMINARY; PRT; 191 AA.  
 AC Q96KJ0 01-DEC-2001 (TREMBlrel. 19, Created)  
 DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor 15b.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Homidae; Homo.  
 NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC Tissue=Kidney;  
 RA Sugiono M., Winkler M., Gillatt D., Harper S.J., Bates D.O.;  
 RT "A new isoform of vascular endothelial growth factor mRNA is down-  
 regulated in renal tumors.";  
 RL (in) Unknown A. (eds.);  
 RL Proceedings of the 7th World Congress on Microcirculation, pp.3-3,  
 RL Sydney, Australia (2001).  
 DR EMBL; AF430806; AAL27435.1; -;  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF; 1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 SQ SEQUENCE 191 AA; 22358 MW; D25243B540AC79BD CRC64;

Query Match 96.4%; Score 133; DB 4; Length 191;  
 Best Local Similarity 96.2%; Pred. No. 3.2e-13;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITWQIMRIKPH 26  
 DB 87 CNDGLECPTEESNITWQIMRIKPH 112

## RESULT 3

Q96L82 PRELIMINARY; PRT; 191 AA.  
 AC Q96L82 01-DEC-2001 (TREMBlrel. 19, Created)  
 DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
 DT 01-OCT-2002 (TREMBlrel. 22, Last annotation update)  
 DE Vascular endothelial growth factor.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Homidae; Homo.  
 NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Liu J., Peng X., Yuan J., Qiang B.;  
 RT "Cloning of vascular endothelial growth factor (VEGF) cDNA.";  
 RL Submitted (JUN-2001) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY047581; AAK55847.1; -;  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF; 1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 SQ SEQUENCE 191 AA; 22314 MW; CCE57097DD3779BD CRC64;

Query Match 96.4%; Score 133; DB 4; Length 191;  
 Best Local Similarity 96.2%; Pred. No. 3.2e-13;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITWQIMRIKPH 26  
 DB 87 CNDGLECPTEESNITWQIMRIKPH 112

## RESULT 4

Q95NE5 PRELIMINARY; PRT; 191 AA.  
 AC Q95NE5 01-DEC-2001 (TREMBlrel. 19, Created)  
 DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
 DT 01-OCT-2002 (TREMBlrel. 22, Last annotation update)  
 DE SIVVEGP165.  
 OS Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
 OC Cercopithecoidea; Macaca.  
 NCBI\_TaxID=9541;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=96245208; PubMed=8641836;  
 RA Shima D.T., Gougos A., Miller J.W., Tolentino M., Robinson G.,  
 RA Adams A.P., D'Amore P.A.;  
 RT "Cloning and mRNA expression of vascular endothelial growth factor in  
 ischemic retina of Macaca fascicularis.";  
 RL Invest. Ophthalmol. Vis. Sci. 37:1334-1340(1996).  
 DR EMBL; S82167; AAB47118.1; -;  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF; 1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 SQ SEQUENCE 191 AA; 22314 MW; CCE57097DD3779BD CRC64;

Query Match 96.4%; Score 133; DB 6; Length 191;  
 Best Local Similarity 96.2%; Pred. No. 3.2e-13;  
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITWQIMRIKPH 26  
 DB 87 CNDGLECPTEESNITWQIMRIKPH 112

## RESULT 5

Q8MIN0 PRELIMINARY; PRT; 65 AA.  
 AC Q8MIN0 01-OCT-2002 (TREMBlrel. 22, Created)  
 DT 01-OCT-2002 (TREMBlrel. 22, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor 121 (Fragment).  
 OS Capra hircus (Goat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Caprinae; Capra.  
 NCBI\_TaxID=9925;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC Tissue=Corpus luteum;  
 RA Kawate N., Tsuji M., Tamada H., Inaba T., Sawada T.;  
 RT "Changes of messenger RNA encoding Vascular Endothelial Growth Factor  
 and its receptors during the development and maintenance of Caprine  
 Corpus luteum.";  
 RL Submitted (MAY-2002) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY114353; AAM76674.1; -;  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF; 1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 FT NON TER 1  
 SQ SEQUENCE 65 AA; 7562 MW; BAA35384364B05E3 CRC64;

Query Match 92.0%; Score 127; DB 6; Length 65;  
 Best Local Similarity 92.3%; Pred. No. 8.8e-13;  
 Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;



Qy 1 CNDEGLSVPTESNITMQRKPH 26  
 |||||  
 Db 5 CNDEGLSVPTESNITMQRKPH 30

## RESULT 6

Q8MINI1 PRELIMINARY; PRT; 109 AA.  
 AC Q8MINI1;  
 DT 01-OCT-2002 (TREMBLrel. 22, Created)  
 DT 01-OCT-2002 (TREMBLrel. 22, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor 165 (Fragment).  
 OS Capra hircus (Goat).  
 CC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 CC Bovidae; Caprinae; Capra.  
 NCBI\_TaxID=9925;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Corpus luteum;  
 RA Kavate N., Teuji M., Tamada H., Inaba T., Sawada T.;  
 RT "Changes of Messenger RNAs Encoding Vascular Endothelial Growth Factor  
 and Its Receptors during the Development and Maintenance of Caprine  
 Corpora Lutea."  
 RL Submitted (May-2002) to the EMBL/GenBank/DBJ databases.  
 DR EMBL, AY14352; AAM76673.1; -.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF\_1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART: SM00141; PDGF\_1.  
 DR PROSITE: PS50278; PDGF\_2; 1.  
 DR NON\_TER 1  
 SQ SEQUENCE 109 AA; 12656 MW; 912657251A37E023 CRC64;

Query Match 92.0%; Score 127; DB 6; Length 109;  
 Best Local Similarity 92.3%; Pred. No. 1.6e-12;  
 Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTESNITMQRKPH 26  
 |||||  
 Db 5 CNDEGLSVPTESNITMQRKPH 30

RESULT 7  
 Q9GK00 PRELIMINARY; PRT; 124 AA.  
 AC Q9GK00;  
 DT 01-MAR-2001 (TREMBLrel. 16, Created)  
 DT 01-MAR-2001 (TREMBLrel. 16, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 GN VEGF.  
 OS Callithrix jacchus (Common marmoset).  
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae; Callitrix.  
 NCBI\_TaxID=9483;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Oviduct;  
 RA Welter H., Gabler C., Binspanier R.;  
 RT "growth factor expression in marmoset monkey oviducts."  
 RL Submitted (May-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL, AJ278192; CAC19923.1; -.  
 DR HSSP: P49763; 1FZV.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF\_1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART: SM00141; PDGF\_1.  
 DR PROSITE: PS00249; PDGF\_1; 1.  
 DR PROSITE: PS50278; PDGF\_2; 1.  
 DR NON\_TER 1  
 SQ SEQUENCE 124 AA; 21608 MW; BAD47CCB0C146F22 CRC64;

FT NON TER 124 124  
 SQ SEQUENCE 124 AA; 14548 MW; AA6F8CAF6FOA0CC CRC64;

Query Match 92.0%; Score 127; DB 6; Length 124;  
 Best Local Similarity 92.3%; Pred. No. 1.8e-12;  
 Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTESNITMQRKPH 26  
 |||||  
 Db 47 CNDEGLSVPTESNITMQRKPH 72

## RESULT 8

Q8SP29 PRELIMINARY; PRT; 124 AA.  
 AC Q8SP29;  
 DT 01-JUN-2002 (TREMBLrel. 21, Created)  
 DT 01-OCT-2002 (TREMBLrel. 21, Last sequence update)  
 DT 01-OCT-2002 (TREMBLrel. 22, Last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 OS Sus scrofa (Pig).  
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.  
 NCBI\_TaxID=9823;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Myocardium;  
 RA Yuan H., Li J.;  
 RT "The expression of VEGF in porcine collateral-dependent myocardial by  
 exercise training."  
 RL Submitted (DEC-2001) to the EMBL/GenBank/DBJ databases.  
 DR EMBL, AF461807; AAL85286.1; -.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF\_1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART: SM00141; PDGF\_1.  
 DR PROSITE: PS00249; PDGF\_1; 1.  
 DR PROSITE: PS50278; PDGF\_2; 1.  
 DR NON\_TER 124  
 SQ SEQUENCE 124 AA; 14552 MW; 2E1C1A009E67C9C9 CRC64;

Query Match 92.0%; Score 127; DB 6; Length 124;  
 Best Local Similarity 92.3%; Pred. No. 1.8e-12;  
 Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTESNITMQRKPH 26  
 |||||  
 Db 58 CNDEGLSVPTESNITMQRKPH 83

RESULT 9  
 Q8HY70 PRELIMINARY; PRT; 184 AA.  
 AC Q8HY70;  
 DT 01-MAR-2003 (TREMBLrel. 23, Created)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor A (Fragment).  
 OS Mus musculus (House mouse).  
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Carnivora; Placentalia; Muridae; Murinae;  
 CC Mus musculus.  
 NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Lopes F.L., Demarale J.A., Gevry N.Y., Ledoux S., Murphy B.D.;  
 RT "Expression of VEGF isoforms and receptors during implantation in  
 Mus musculus."  
 RL Submitted (OCT-2002) to the EMBL/GenBank/DBJ databases.  
 DR EMBL, AY158156; AAN76365.1; -.  
 DR NON\_TER 184  
 SQ SEQUENCE 184 AA; 21608 MW; BAD47CCB0C146F22 CRC64;

Query Match 92.0%; Score 127; DB 6; Length 184;  
 Best Local Similarity 92.3%; Pred. No. 2.8e-12;  
 Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNITWQIMRIKPH 26  
 DB 86 CNDGELCVPTEEFNITWQIMRIKPH 111

## RESULT 10

O95LQ4 PRELIMINARY; PRT; 189 AA.

ID O95LQ4  
 AC O95LQ4  
 DT 01-DEC-2001 (TREMBLrel. 19, Created)  
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor.  
 OS Felis silvestris catus (Cat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Carnivora; Fissipedia; Felidae; Felis.  
 OX NCBI\_TaxID=9685;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Koga L., Kobayashi Y., Yazawa M., Masuda K., Ohno K., Tsujimoto H.;  
 RT "Nucleotide sequence and expression of the feline vascular endothelial  
 growth factor."  
 RL Submitted (SEP-2001) to the EMBL/Genbank/DBJ databases.  
 DR EMBL; AB071947; BAB65520.1; -.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 SQ SEQUENCE 189 AA; 22153 MW; C1B4646759ABJFD6 CRC64;

Query Match 92.0%; Score 127; DB 6; Length 189;  
 Best Local Similarity 92.3%; Pred. No. 2.9e-12;  
 Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNITWQIMRIKPH 26  
 DB 86 CNDGELCVPTEEFNITWQIMRIKPH 111

## RESULT 11

O8WMQ4 PRELIMINARY; PRT; 127 AA.

ID O8WMQ4  
 AC O8WMQ4  
 DT 01-MAR-2002 (TREMBLrel. 20, Created)  
 DT 01-MAR-2002 (TREMBLrel. 20, Last sequence update)  
 DT 01-OCT-2002 (TREMBLrel. 22, Last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 OS Sus scrofa (Pig).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.  
 OX NCBI\_TaxID=9823;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA TISSUE=Myocardium;  
 RA Yuan H., Li J.;  
 RT "The expression of VEGF in porcine collateral-dependent myocardial by  
 exercise training."  
 RL Submitted (JAN-2002) to the EMBL/Genbank/DBJ databases.  
 DR EMBL; AY072734; AAL68393.1;  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 FT NON\_TER 127  
 SQ SEQUENCE 127 AA; 14920 MW; 5AB63F01AEB29ED CRC64;

Query Match 88.4%; Score 122; DB 6; Length 127;  
 Best Local Similarity 88.5%; Pred. No. 1.2e-11;  
 Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNITWQIMRIKPH 26  
 DB 44 CNDGELCVPTEEFNITWQIMRIKPH 69

## RESULT 12

O9OX39 PRELIMINARY; PRT; 190 AA.

ID O9OX39  
 AC O9OX39  
 DT 01-MAY-2000 (TREMBLrel. 13, Created)  
 DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor.  
 GN Spalax leucodon ehrenbergi (Ehrenberg's mole rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Spalacinae;  
 OC Nannospalax.  
 OX NCBI\_TaxID=30637;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Avivi A., Resnick M.B., Nevo E., Joel A., Levy A.P.;  
 RT "Adaptive hypoxic tolerance in the subterranean mole rat Spalax  
 ehrenbergi: the role of vascular endothelial growth factor."  
 RL FEBS Lett. 452:133-140(1999).  
 DR EMBL; AF186236; AAD56245.1; -.  
 DR HSSP; P49763; IFZV.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 SQ SEQUENCE 190 AA; 22488 MW; 2228383BC65F0BF6 CRC64;

Query Match 88.4%; Score 122; DB 11; Length 190;  
 Best Local Similarity 88.5%; Pred. No. 1.9e-11;  
 Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNITWQIMRIKPH 26  
 DB 86 CNDGELCVPTEESNITWQIMRIKPH 111

## RESULT 13

O9NIS2 PRELIMINARY; PRT; 78 AA.

ID O9NIS2  
 AC O9NIS2  
 DT 01-OCT-2000 (TREMBLrel. 15, Created)  
 DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor isoform 121 (Fragment).  
 GN VEGF.  
 OS Capreolus capreolus (Roe deer).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidae;  
 OC Cervidae; Odocoileinae; Capreolus.  
 OX NCBI\_TaxID=9858;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA TISSUE=Testis;  
 RC MEDLINE=20532861; PubMed=11078967;  
 RA Waegner A., Bliotner S., Gortz F., Fickel J.;  
 RT "Detection of growth factors in the testis of roe deer (Capreolus  
 capreolus)."  
 RL Anim. Reprod. Sci. 64:65-75(2000).  
 DR EMBL; AF152593; AAF73232.1; -.

DR HSP; P49763; 1FZV.  
 DR InterPro; IPR002400; GF\_cysknoc.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF; 1.  
 DR PRINTS; PR00438; GFCSKNOT.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 FT NON\_TER 1  
 FT NON\_TER 78  
 SQ SEQUENCE 78 AA; 9131 MW; 7BEE2DDDFC17847C CRC64;

Query Match 87.7%; Score 121; DB 6; Length 78;  
 Best Local Similarity 88.5%; Pred. No. 1e-11;  
 Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTESNITWQIMRIKPH 26  
 Db 25 CNDESLCVPTEEFNITWQIMRIKPH 50

## RESULT 14

Q9MZB1 PRELIMINARY; PRT; 118 AA.  
 AC Q9MZB1;  
 DT 01-OCT-2000 (TREMblrel. 15, Created)  
 DT 01-OCT-2000 (TREMblrel. 15, Last sequence update)  
 DT 01-MAR-2003 (TREMblrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 GN VEGF.  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Caprinae; Ovis.  
 OX NCBI\_TaxID=9940;  
 RN [1]  
 RP TISSUE=Placental artery endothelium;  
 RC "Growth factor expression in ovine fetal placental artery endothelial  
 RT cells."  
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF250375; AAF75258.1;  
 DR HSP; P49763; 1FZV.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF; 1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 FT NON\_TER 1  
 FT NON\_TER 118  
 SQ SEQUENCE 118 AA; 13931 MW; 757DC53A56378A6 CRC64;

Query Match 87.7%; Score 121; DB 6; Length 118;  
 Best Local Similarity 88.5%; Pred. No. 1.6e-11;  
 Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTESNITWQIMRIKPH 26  
 Db 58 CNDESLCVPTEEFNITWQIMRIKPH 83

## RESULT 15

Q9N1S1 PRELIMINARY; PRT; 123 AA.  
 AC Q9N1S1;  
 DT 01-OCT-2000 (TREMblrel. 15, Created)  
 DT 01-OCT-2000 (TREMblrel. 15, Last sequence update)  
 DT 01-MAR-2003 (TREMblrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor isoform 165 (Fragment).  
 GN VEGF.  
 OS Capreolus capreolus (Roe deer).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervidae;  
 CC Cervidae; Odocoileinae; Capreolus.  
 OX NCBI\_TaxID=9858;  
 RN [1]  
 RP TISSUE=Testis;  
 RC MEDLINE=20532861; PubMed=11078967;  
 RA Wagener A., Biotner S., Goritz F., Fickel J.;  
 RT "Detection of growth factors in the testis of roe deer (Capreolus  
 capreolus).";  
 RL Anim. Reprod. Sci. 64:65-75 (2000).  
 DR EMBL; AF152594; AAF73233.1;  
 DR HSP; P49763; 1FZV.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF; 1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 FT NON\_TER 1  
 FT NON\_TER 123  
 SQ SEQUENCE 123 AA; 14354 MW; 0A756F541054CE1 CRC64;

Query Match 87.7%; Score 121; DB 6; Length 123;  
 Best Local Similarity 88.5%; Pred. No. 1.7e-11;  
 Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTESNITWQIMRIKPH 26  
 Db 25 CNDESLCVPTEEFNITWQIMRIKPH 50

Search completed: January 30, 2004, 11:44:41  
 Job time : 26.9333 secs



	10	66	93.0	105	22	AAU08411	Polypeptide encode
	11	66	93.0	105	22	AAU08467	Polypeptide encode
	12	66	93.0	105	22	AAU08473	Polypeptide encode
	13	66	93.0	105	22	AAU08477	Polypeptide encode
	14	66	93.0	105	22	AAU08475	Polypeptide encode
	15	66	93.0	110	21	AAV69417	Amino acid sequenc
	16	66	93.0	110	21	AAV83038	Human vascular endo
	17	66	93.0	110	22	AAV79276	Primary sequence o
	18	66	93.0	110	22	AAV50436	Human VEGF110. Hc
	19	66	93.0	110	23	ABV76304	Human VEGFR1 endo
	20	66	93.0	121	12	AAAR1385	Human vascular end
	21	66	93.0	121	14	AAAR4267	Human VEGF-121. H
	22	66	93.0	121	17	AAW09091	Human VEGF/VPR121
	23	66	93.0	121	17	AAW03677	Vascular permeabili
	24	66	93.0	121	17	AAV96043	Human vascular per
	25	66	93.0	121	17	AAV93977	Vascular permeabil
	26	66	93.0	121	19	AAW40597	VEGF/VPR121. Homo
	27	66	93.0	121	20	AAV23943	Amino acid sequenc
	28	66	93.0	121	20	AAV08278	Human growth facto
	29	66	93.0	121	21	AAV99848	Human vascular endo
	30	66	93.0	121	22	AAV50428	Mature human vascu
	31	66	93.0	121	24	AAV84619	Human VEGFR121 mon
	32	66	93.0	121	24	AAE32329	Human vascular end
	33	66	93.0	126	22	AAU08403	Polypeptide encode
	34	66	93.0	127	22	AAU08405	Polypeptide encode
	35	66	93.0	127	22	AAU08423	Polypeptide encode
	36	66	93.0	127	22	AAU08427	Polypeptide encode
	37	66	93.0	128	22	AAU08419	Polypeptide encode
	38	66	93.0	128	22	AAU08415	Polypeptide encode
	39	66	93.0	129	22	AAU08435	Polypeptide encode
	40	66	93.0	129	22	AAU08435	Polypeptide encode
	41	66	93.0	141	24	ABG71756	Human vascular end
	42	66	93.0	145	19	AAW56693	Vascular endotheli
	43	66	93.0	145	20	AAV08279	Human growth facto
	44	66	93.0	145	21	AAV69413	Amino acid sequenc
	45	66	93.0	145	21	AAV83034	Human vascular end

ALIGNMENTS

RESULT 1						
ID	AAI8549	standard;	peptide;	13 AA.		
XX	AAI8549:					
DT	15-JAN-2001	(first entry)				
DE	Immunogenic peptide fragment derived from FGF and/or VEGF.					
XX						
KM	Immunogenic peptide; fibroblast growth factor; FGF; VEGF; cancer;					
KM	vascular endothelial growth factor; hyperproliferative disorder;					
KM	hemangioma; solid tumour; blood borne tumour; leukaemia; metastasis;					
KM	telangiectasia; psoriasis; scleroderma; pyogenic granuloma;					
KM	myocardial angiogenesis; Crohn's disease; plaque neovascularisation;					
KM	arteriovenous malformation; corneal disease; rubecosis;					
KM	neovascular glaucoma; diabetic retinopathy; retrolental fibroplasia;					
KM	arthritis; diabetic neovascularization; macular degeneration;					
KM	wound healing; peptic ulcer; Helicobacter related disease; fracture;					
KM	keloid; vasculogenesis; hematopoiesis; ovulation; menstruation;					
KM	placentaion; cat scratch fever.					
XX						
OS	Unidentified.					
FN	WO200053219-A2.					
XX						
PD	14-SEP-2000.					
XX						
PF	10-MAR-2000, 2000WO-US06320.					
XX						
XR	11-MAR-1999, 99US-0266543.					
XX						

PA (ENTR-) ENTREMED INC.  
 XX Holaday JW, Ruiz A, Madsen J;  
 XX WPI; 2000-594263/56.  
 DR  
 XX An immunogenic composition useful for treating cancer or  
 PT hyperproliferative disorders comprises an immunogenic peptide fragment  
 PT of fibroblast growth factor and/or vascular endothelial growth factor -  
 XX  
 XX Claim 13; Page 28; 95pp; English.  
 PS  
 XX AAB18542-51 represent immunogenic peptide fragments of fibroblast  
 CC growth factor (FGF) and/or vascular endothelial growth factor (VEGF).  
 CC The peptides are used to produce immunogenic compositions. The  
 CC immunogenic composition is used for treating cancer or  
 CC hyperproliferative disorders, especially haemangioma, solid tumours,  
 CC blood borne tumours, leukaemia, metastasis, telangiectasia, psoriasis,  
 CC scleroderma, pyogenic granuloma, myocardial angiogenesis, Crohn's  
 CC disease, plaque neovascularisation, arteriovenous malformations,  
 CC corneal diseases, rubecosis, neovascular glaucoma, diabetic retinopathy,  
 CC retrolental fibroplasia, arthritis, diabetic neovascularisation, macular  
 CC degeneration, wound healing, peptic ulcer, Helicobacter related  
 CC diseases, fractures, keloids, vasculogenesis, hematopoiesis, ovulation,  
 CC menstruation, placentalation and cat scratch fever.  
 CC  
 SQ Sequence 13 AA;  
 XX  
 Query Match 100.0%; Score 71; DB 21; Length 13;  
 Best Local Similarity 100.0%; Pred. No. 1.2e-05;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 OY 1 CNDGLESVPTEE 13  
 DB 1 CNDGLESVPTEE 13  
 RESULT 2  
 AAB18548  
 ID AAB18548 standard; peptide; 26 AA.  
 XX  
 AC AAB18548;  
 XX  
 DT 15-JAN-2001 (first entry)  
 XX  
 DE Immunogenic peptide fragment derived from FGF and/or VEGF.  
 XX  
 KW Immunogenic peptide; fibroblast growth factor; FGF; VEGF; cancer;  
 KW vascular endothelial growth factor; hyperproliferative disorder;  
 KW haemangioma; solid tumour; blood borne tumour; leukaemia; metastasis;  
 KW telangiectasia; psoriasis; scleroderma; pyogenic granuloma;  
 KW myocardial angiogenesis; Crohn's disease; plaque neovascularisation;  
 KW arteriovenous malformation; corneal disease; rubecosis;  
 KW neovascular glaucoma; diabetic retinopathy; retrolental fibroplasia;  
 KW arthritis; diabetic neovascularisation; macular degeneration;  
 KW wound healing; peptic ulcer; Helicobacter related disease; fracture;  
 KW keloid; vasculogenesis; hematopoiesis; ovulation; menstruation;  
 KW placentalation; cat scratch fever.  
 KW  
 XX Unidentified.  
 OS  
 XX WO200053219-A2.  
 XX  
 PN 14-SEP-2000.  
 XX  
 PD 10-MAR-2000; 2000WO-US06320.  
 XX  
 PF 11-MAR-1999; 99US-0266543.  
 XX  
 PR  
 XX (ENTR-) ENTREMED INC.  
 PA  
 XX Holaday JW, Ruiz A, Madsen J;  
 PI  
 XX

DR WPI; 2000-594263/56.  
 XX  
 XX An immunogenic composition useful for treating cancer or  
 PT hyperproliferative disorders comprises an immunogenic peptide fragment  
 PT of fibroblast growth factor and/or vascular endothelial growth factor -  
 XX  
 XX Claim 13; Page 28; 95pp; English.  
 PS  
 XX AAB18542-51 represent immunogenic peptide fragments of fibroblast  
 CC growth factor (FGF) and/or vascular endothelial growth factor (VEGF).  
 CC The peptides are used to produce immunogenic compositions. The  
 CC immunogenic composition is used for treating cancer or  
 CC hyperproliferative disorders, especially haemangioma, solid tumours,  
 CC blood borne tumours, leukaemia, metastasis, telangiectasia, psoriasis,  
 CC scleroderma, pyogenic granuloma, myocardial angiogenesis, Crohn's  
 CC disease, plaque neovascularisation, arteriovenous malformations,  
 CC corneal diseases, rubecosis, neovascular glaucoma, diabetic retinopathy,  
 CC retrolental fibroplasia, arthritis, diabetic neovascularisation, macular  
 CC degeneration, wound healing, peptic ulcer, Helicobacter related  
 CC diseases, fractures, keloids, vasculogenesis, hematopoiesis, ovulation,  
 CC menstruation, placentalation and cat scratch fever.  
 CC  
 SQ Sequence 26 AA;  
 XX  
 Query Match 100.0%; Score 71; DB 21; Length 26;  
 Best Local Similarity 100.0%; Pred. No. 2.5e-05;  
 Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 OY 1 CNDGLESVPTEE 13  
 DB 1 CNDGLESVPTEE 13  
 RESULT 3  
 AAR94035  
 ID AAR94035 standard; Protein; 65 AA.  
 XX  
 AC AAR94035;  
 XX  
 DT 10-OCT-1996 (first entry)  
 XX  
 DE VEGF exon III.  
 XX  
 KW Vascular endothelial growth factor; VEGF; human; conjugate; tumour; iris;  
 KW proliferation inhibition; VEGF-mediated pathophysiological condition;  
 KW dermatological disorder; VEGF receptor; vascular proliferation; retina;  
 KW ophthalmic disorder; hyperproliferating blood vessel; therapy; psoriasis;  
 KW conjunctiva; vitreous humour; rheumatoid arthritis; skin cancer;  
 KW varicose veins; gene therapy.  
 KW  
 XX Homo sapiens.  
 OS  
 XX WO9606641-A1.  
 XX  
 PN 07-MAR-1996.  
 XX  
 PD 29-AUG-1995; 95WO-US10973.  
 XX  
 PE 16-MAY-1995; 95US-0441979.  
 XX  
 PR 29-AUG-1994; 94US-0297961.  
 XX  
 PR  
 XX (PRIZ-) PRIZM PHARM INC.  
 PA  
 XX Fleurbaut GA, Freund E, Houston LL, Nova MP, Sosnowski BA;  
 PI Victor KD;  
 XX  
 XX WPI; 1996-160151/16.  
 DR N-PSDB; AAT17743.  
 XX  
 DR  
 XX Vascular endothelial cell growth factor (VEGF) conjugates - having  
 PT VEGF linked to targeted agent, used for inhibiting proliferation of  
 PT cells, e.g. for gene therapy  
 PT  
 XX

PS Disclosure; Page 119; 193pp; English.

XX AA894033-R94038, AA894041, AA894042 and AA894052 represent vascular  
 CC endothelial growth factors (VEGF) exons. This sequence represents exon  
 CC III. These sequences were used in VEGF conjugates of the invention. In  
 CC the conjugates, VEGF (or fragments of it) are linked to a targeted agent  
 CC (this can be via a linker sequence), so that the conjugate binds to a  
 CC VEGF receptor. Cys-modified forms of VEGF are particularly suitable for  
 CC chemical conjugation to linkers and targeted agents. The conjugates are  
 CC used for inhibiting proliferation of cells bearing VEGF receptors. They  
 CC can be used for treating a VEGF-mediated pathophysiological condition,  
 CC including dermatological disorders with underlying vascular  
 CC proliferation, solid tumours or an ophthalmic disorder of  
 CC hyperproliferating blood vessels of the retina, iris, conjunctiva or  
 CC vitreous humour. The conjugates can also be used for treating  
 CC psoriasis, rheumatoid arthritis, skin cancers and other tumours, or  
 CC varicose veins. They are also suitable for use in gene therapy.

XX SQ Sequence 65 AA;

Query Match 93.0%; Score 66; DB 17; Length 65;  
 Best Local Similarity 92.3%; Pred. No. 0.00051;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLESPVTEE 13  
 |||||  
 DB 47 CNDEGLECPVTEE 59

RESULT 4  
 AA842609  
 ID AA842609 standard; Protein; 66 AA.

XX AA842609;  
 AC  
 XX 25-MAR-2003 (updated)  
 DT 28-OCT-1993 (first entry)  
 XX  
 DE Encoded by human VEGF-165 exon III.

XX Angiogenesis; wound healing; mitogen; vascular endothelial cells;  
 KW Vascular Endothelial Cell Growth Factor; hVEGF-165; hVEGF-121;  
 KW alternative RNA splicing.

XX OS Homo sapiens.  
 XX US5219739-A.  
 XX 15-JUN-1993.  
 PD  
 XX 27-JUL-1990; 90US-0559041.  
 PF  
 XX 27-JUL-1989; 89US-0387545.  
 PR 14-DEC-1989; 89US-0450883.  
 PR 27-JUL-1990; 90US-0559041.

XX (SCTO-) SCTOS NOVA INC.  
 PA  
 XX Abraham JA, Fiddes JC, Mitchell RL, Fischer EG;  
 PI  
 DR WPI; 1993-205302/25.  
 DR N-PSDB; AAQ49605.

PT Isolated DNA sequences, expression vectors and transformant cells  
 PT - used for large scale prodn. of vascular endothelial cell growth  
 PT factor, for treating wounds in which neo-vascularisation is  
 PT required

XX  
 XX PS Claim 8; Fig 8; 40pp; English.

XX The sequences of the 8 possible exons encoding human vascular  
 CC endothelial cell growth factor, together with contiguous splice  
 CC junctions, were obtained from overlapping genomic inserts. A method

CC for producing VEGF is claimed comprising culturing mammalian cells  
 CC transformed with an expression vector containing exons I-V and  
 CC VII. See AAQ44261 for exon I and AAQ49604-Q49610 for exons II-VIII.  
 CC (updated on 25-MAR-2003 to correct PF field.)

XX SQ Sequence 66 AA;

Query Match 93.0%; Score 66; DB 14; Length 66;  
 Best Local Similarity 92.3%; Pred. No. 0.00052;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLESPVTEE 13  
 |||||  
 DB 48 CNDEGLECPVTEE 60

RESULT 5  
 AAU04521  
 ID AAU04521 standard; protein; 94 AA.

XX AAU04521;  
 AC  
 XX 26-SEP-2001 (first entry)  
 DT  
 XX  
 DE Human VEGF amino acids Lys42-Asp135.

XX Human; VEGF; vascular endothelial growth factor; angiogenesis;  
 KW neovascularisation; lymphangiogenesis; psoriasis; tumour;  
 KW diabetes induced neovascular sequelae; rheumatoid arthritis;  
 KW diabetic retinopathy; chronic inflammation.

XX OS Homo sapiens.  
 XX WO200152875-A1.  
 XX 26-JUL-2001.  
 PD  
 XX 18-JAN-2001; 2001WO-US01533.  
 PF  
 XX 18-JAN-2000; 2000US-0176293.  
 PR 16-MAY-2000; 2000US-0204590.

XX (LUDW-) LUDWIG INST CANCER RES.  
 XX  
 PI Achen MG, Hughes RA, Stacker S, Cendron A;  
 XX  
 DR WPI; 2001-442248/47.

PT Novel monomeric monocyclic peptide, used to interfere with  
 PT angiogenesis, or lymphangiogenesis, is produced by cyclising a peptide  
 PT loop fragment from an exposed loop of a growth factor protein by  
 PT oxidizing the cysteine residues -

XX  
 XX Example 1; Page 90; 102pp; English.

XX The sequence represents Human VEGF (vascular endothelial growth factor)  
 CC amino acids Lys42-Asp135. The sequence is used in a method of producing  
 CC a monomeric monocyclic peptide by a measuring beta-beta carbon separation  
 CC distances on opposite antiparallel strands of a peptide loop fragment  
 CC from an exposed loop of a growth factor protein and cyclising the peptide  
 CC by oxidising the cysteine residues. The monocyclic peptides, dimeric  
 CC bicyclic peptides (comprising 2 linked monocyclic peptides) and a cyclic  
 CC peptide with at least one amino acid deleted prior to cyclisation are  
 CC used to interfere with angiogenesis, neovascularisation or  
 CC lymphangiogenesis in a mammal with a condition characterised by  
 CC angiogenesis, neovascularisation or lymphangiogenesis. The condition is  
 CC diabetic retinopathy, psoriasis, arthropathy, hemangioma, vascularised  
 CC malignant or benign tumour, post-recovery cerebrovascular accident,  
 CC post-angioplasty restenosis, head, heat or cold trauma, substance-induced  
 CC neovascularisation of the liver, excessive hormone-related angiogenic  
 CC dysfunction, diabetes induced neovascular sequelae, hypertension induced  
 CC neovascular sequelae, or chronic liver infection. The peptides are also  
 CC used to modulate vascular permeability in a mammal (the mammal has a

CC condition characterised by fluid accumulation in peripheral limbs or in  
 CC lungs, peritoneal cavity, pleura, or brain. The peptides are used to  
 CC image blood vessels and lymphatic vasculature. The monomeric and bicyclic  
 CC peptides are used to interfere with at least one biological activity  
 CC induced by VEGF, VEGF-C or -D and are also used in combination with an  
 CC anti-inflammatory agent, to treat a chronic inflammation, especially  
 CC rheumatoid arthritis, psoriasis and diabetic retinopathy.

XX Sequence 94 AA;

Query Match 93.0%; Score 66; DB 22; Length 94;

Best Local Similarity 92.3%; Pred. No. 0.00077; Mismatches 1; Indels 0; Gaps 0;

Oy 1 CNDGLESVPTEE 13  
 DB 46 CNDGSLCVPTEE 58

RESULT 6  
 AAE32330 standard; Protein; 101 AA.

XX AAE32330;

DT 24-MAR-2003 (first entry)

DE Human VEGF-A receptor binding domain.

KW Vascular endothelial growth factor; VEGF; angiogenesis; wound healing;  
 KW bone growth; osteoporosis; osteoarthritis; bone reconstruction; ulcer;  
 KW lesion; injury; trauma; periodontal condition; protein therapy; human.

XX Homo sapiens.

PN WO200283851-A2.

PD 24-OCT-2002.

PE 10-APR-2002; 2002WO-US11406.

PR 10-APR-2001; 2001US-0832355.

PA (GENV-) GENVEC INC.

PI Kovesdi I, Kessler PD;

WP1; 2003-075536/07.

PT New fusion protein comprising a non-heparin-binding vascular  
 PT endothelial growth factor (VEGF) peptide portion and a non-VEGF peptide  
 PT portion, useful for promoting angiogenesis and/or bone growth in  
 PT mammals

PS Disclosure; Page 118-119; 191pp; English.

CC The invention relates to a fusion protein comprising non-heparin binding  
 CC vascular endothelial growth factor (VEGF) peptide portion and a non-VEGF  
 CC peptide portion useful for promoting angiogenesis and/or bone growth in  
 CC mammalian host. The fusion protein is useful for promoting angiogenesis,  
 CC wound healing and bone growth. Compositions containing bone growth  
 CC promoting fusion protein can be used to treat osteoporosis, rheumatoid  
 CC or osteoarthritis, to improve poor bone healing, to promote implant  
 CC integration and function of artificial joints and to facilitate bone  
 CC reconstruction. They can also be used to treat e.g. ulcers, lesions,  
 CC injuries, burns, trauma, periodontal conditions, lacerations and other  
 CC conditions. The invention is also useful in protein therapy. The present  
 CC sequence is human VEGF-A receptor binding domain.

XX Sequence 101 AA;

Query Match 93.0%; Score 66; DB 24; Length 101;

Best Local Similarity 92.3%; Pred. No. 0.00083;

Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 Oy 1 CNDGLESVPTEE 13  
 DB 53 CNDGSLCVPTEE 65

RESULT 7  
 AAU08484 standard; Peptide; 102 AA.

XX AAU08484;

DT 21-NOV-2001 (first entry)

DE VEGFR-1 binding epitope from human VEGF-A.

KW Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;  
 KW angiogenesis; blood vessel; cancer; proliferative retinopathy;  
 KW psoriasis; age-related macular degeneration; rheumatoid arthritis;  
 KW cardiovascular; VEGFR-1.

OS Homo sapiens.

PN WO200162942-A2.

PD 30-AUG-2001.

PE 26-FEB-2001; 2001WO-US06113.

PR 25-FEB-2000; 2000US-0185205.

PR 18-MAY-2000; 2000US-0205331.

PA (LUDW-) LUDWIG INST CANCER RES.

PI (LICN) LICENTIA OY.

PI Alitalo K, Jeltsch MM;

WP1; 2001-536640/59.

PT Polypeptides that bind cellular receptors for vascular endothelial  
 PT growth factors, polynucleotides encoding them -  
 PS Example 4; Page 115; 261pp; English.

CC The present invention relates to polypeptides that bind cellular  
 CC receptors for vascular endothelial growth factors (VEGFs), the  
 CC polynucleotides encoding them, and their use for identifying agents that  
 CC modulate interactions between VEGFs and their receptors. VEGFs and their  
 CC receptors play an important role in vasculogenesis, the development of  
 CC the embryonic vasculature from early differentiating endothelial cells  
 CC and angiogenesis, the process of forming new blood vessels from  
 CC pre-existing ones. Modulators of interactions between VEGF and its  
 CC receptors may be used to treat dysfunction of the endothelial cell  
 CC regulatory system. Such disorders include cancers, abnormal angiogenesis,  
 CC proliferative retinopathies, age-related macular degeneration, rheumatoid  
 CC arthritis and psoriasis. The polypeptides of the invention exhibit unique  
 CC receptor binding profiles compared to known naturally occurring VEGFs.  
 CC The present sequence represents VEGFR-1 binding epitope from human  
 CC VEGF-A.

XX Sequence 102 AA;

Query Match 93.0%; Score 66; DB 22; Length 102;

Best Local Similarity 92.3%; Pred. No. 0.00084; Mismatches 1; Indels 0; Gaps 0;

Oy 1 CNDGLESVPTEE 13  
 DB 54 CNDGSLCVPTEE 66

RESULT 8



AAB53387  
 ID AAB53387 standard; Protein; 105 AA.  
 XX  
 AC AAB53387;  
 XX  
 DT 09-MAR-2001 (first entry)  
 XX  
 DE Human colon cancer antigen protein sequence SEQ ID NO:927.  
 XX  
 KW Human: colon cancer; colon cancer antigen; diagnosis; detection;  
 KW identification; cytostatic; cardioactive; neuroprotective; vulnerary;  
 KW immunomodulatory; muscular; gynaecological; gastrointestinal;  
 KW nephrotropic; anti-infective; antibacterial; gene therapy; wound;  
 KW neural disorder; immune system disorder; muscular disorder;  
 KW reproductive disorder; gastrointestinal disorder; renal disorder;  
 KW infectious disease; cardiovascular disorder.  
 XX  
 OS Homo sapiens.  
 XX  
 PN WO20005351-A1.  
 XX  
 PD 21-SEP-2000.  
 XX  
 PF 08-MAR-2000; 2000WO-US05883.  
 XX  
 PR 12-MAR-1999; 99US-0124270.  
 XX  
 PA (HUMA-) HUMAN GENOME SCI INC.  
 XX  
 PI Rosen CA, Ruben SM;  
 XX  
 DR WPI; 2000-587534/55.  
 DR N-PSDB; AAC98144.  
 XX  
 PT Colon cancer associated gene sequences, referred to as colon cancer  
 PT antigens, useful for the treatment, prevention, and diagnosis of colon  
 PT disorders such as colon cancer -  
 XX  
 PS Claim 11; Page 1486; 2104pp; English.  
 XX  
 CC AAC97991 to AAC98763 encode the human colon cancer associated proteins,  
 CC called human colon cancer antigens, given in AAB53234 to AAB54006. The  
 CC human colon cancer antigens can have cytostatic, cardioactive, muscular;  
 CC neuroprotective, immunomodulatory, gynaecological, gastrointestinal,  
 CC vulnerary, nephrotropic, anti-infective and antibacterial activities, and  
 CC can be used in gene therapy. The colon cancer antigen polynucleotides,  
 CC proteins and antibodies to the proteins are useful for the prevention,  
 CC treatment and diagnosis of colon disorders, such as colon cancer. The  
 CC polynucleotides may be used in diagnostics and research, such as for  
 CC chromosome identification, and as hybridisation probes. The proteins  
 CC may also be used to prevent diseases such as neural disorders, immune  
 CC system disorders, muscular disorders, reproductive disorders,  
 CC gastrointestinal disorders, wounds, renal disorders, infectious  
 CC diseases, and cardiovascular disorders. AAC98764 to AAC98772 and  
 CC AAB54007 represent sequences used in the exemplification of the present  
 CC invention.  
 XX  
 SQ Sequence 105 AA;  
 XX  
 Query Match 93.0%; Score 66; DB 21; Length 105;  
 Best Local Similarity 92.3%; Pred. No. 0.00087;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 CNDGLESVPTRE 13  
 |||||  
 DB 45 CNDGLESVPTRE 57

XX  
 DT 21-NOV-2001 (first entry)  
 XX  
 DE Polypeptide encoded by human VEGF-A/VEGF-C hybrid clone 12-1.  
 XX  
 KW Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;  
 KW angiogenesis; blood vessel; cancer; proliferative retinopathy;  
 KW psoriasis; age-related macular degeneration; rheumatoid arthritis;  
 KW cardiovascular; VEGF-C; mutant; mutein.  
 XX  
 OS Homo sapiens.  
 OS Synthetic.  
 XX  
 FH Key  
 FT Domain  
 FT Location/Qualifiers  
 1..102  
 /note= "VEGF receptor binding domain"  
 XX  
 PN WO200162942-A2.  
 XX  
 PD 30-AUG-2001.  
 XX  
 PF 26-FEB-2001; 2001WO-US06113.  
 XX  
 PR 25-FEB-2000; 2000US-0185205.  
 PR 18-MAY-2000; 2000US-0205331.  
 XX  
 PA (LUDW-) LUDWIG INST CANCER RES.  
 PA (LICN) LICENTIA OY.  
 XX  
 PI Alitalo K, Jeltsch MM;  
 XX  
 DR WPI; 2001-536640/59.  
 DR N-PSDB; AAS12844.  
 XX  
 PT Polypeptides that bind cellular receptors for vascular endothelial  
 PT growth factors, polynucleotides encoding them -  
 XX  
 PS Claim 35; Page 182; 261pp; English.  
 XX  
 CC The present invention relates to polypeptides that bind cellular  
 CC receptors for vascular endothelial growth factors (VEGFs), the  
 CC polynucleotides encoding them, and their use for identifying agents that  
 CC modulate interactions between VEGFs and their receptors. VEGFs and their  
 CC receptors play an important role in vasculogenesis, the development of  
 CC the embryonic vasculature from early differentiating endothelial cells  
 CC and angiogenesis, the process of forming new blood vessels from  
 CC pre-existing ones. Modulators of interactions between VEGF and its  
 CC receptors may be used to treat dysfunction of the endothelial cell  
 CC regulatory system. Such disorders include cancers, abnormal angiogenesis,  
 CC proliferative retinopathies, age-related macular degeneration, rheumatoid  
 CC arthritis and psoriasis. The polypeptides of the invention exhibit unique  
 CC receptor binding profiles compared to known naturally occurring VEGFs.  
 CC The present sequence represents the polypeptide encoded by human  
 CC VEGF-A/VEGF-C hybrid construct clone 12-1.  
 XX  
 SQ Sequence 105 AA;  
 XX  
 Query Match 93.0%; Score 66; DB 22; Length 105;  
 Best Local Similarity 92.3%; Pred. No. 0.00087;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 CNDGLESVPTRE 13  
 |||||  
 DB 54 CNDGLESVPTRE 66

RESULT 9  
 AAU08407  
 ID AAU08407 standard; Protein; 105 AA.  
 XX  
 AC AAU08407;  
 XX

RESULT 10  
 AAU08411  
 ID AAU08411 standard; Protein; 105 AA.  
 XX  
 AC AAU08411;  
 XX  
 DT 21-NOV-2001 (first entry)

```

XX Polypeptide encoded by human VEGF-A/VEGF-C hybrid clone 12-5.
DE
XX
XX Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;
KM angiogenesis; blood vessel; cancer; proliferative retinopathy;
KM psoriasis; age-related macular degeneration; rheumatoid arthritis;
XX cardiovascular; VEGF-C; mutant; mutein.
XX
OS Homo sapiens.
OS Synthetic.
XX
XX Key Location/Qualifiers
XX FT 1..102
XX FT Domain /note="VEGF receptor binding domain"
XX
XX WO200162942-A2.
XX
XX 30-AUG-2001.
XX
XX 26-FEB-2001; 2001WO-US06113.
XX
XX 25-FEB-2000; 2000US-0185205.
XX 18-MAY-2000; 2000US-0205331.
XX
XX (LUDW-) LUDWIG INST CANCER RES.
XX (LICN) LICENTIA OY.
XX
XX Alitalo K, Jeltsch MM;
XX
XX WPI; 2001-536640/59.
XX N-PSDB; AAS12848.
XX
XX Polypeptides that bind cellular receptors for vascular endothelial
PT growth factors, polynucleotides encoding them -
XX
XX Claim 36; Page 186-187; 261pp; English.
XX
XX The present invention relates to polypeptides that bind cellular
CC receptors for vascular endothelial growth factors (VEGFs), the
CC polynucleotides encoding them, and their use for identifying agents that
CC modulate interactions between VEGFs and their receptors. VEGFs and their
CC receptors play an important role in vasculogenesis, the development of
CC the embryonic vasculature from early differentiating endothelial cells
CC and angiogenesis, the process of forming new blood vessels from
CC pre-existing ones. Modulators of interactions between VEGF and its
CC receptors may be used to treat dysfunction of the endothelial cell
CC regulatory system. Such disorders include cancers, abnormal angiogenesis,
CC proliferative retinopathies, age-related macular degeneration, rheumatoid
CC arthritis and psoriasis. The polypeptides of the invention exhibit unique
CC receptor binding profiles compared to known naturally occurring VEGFs.
CC The present sequence represents the polypeptide encoded by human
CC VEGF-A/VEGF-C hybrid construct clone 12-5.
XX
XX
SQ Sequence 105 AA;
XX
XX Query Match 93.0%; Score 66; DB 22; Length 105;
XX Best Local Similarity 92.3%; Pred. No. 0.00087;
XX Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
XX
XX 1 CNDGLESVPTEER 13
XX |||||
XX 54 CNDGLEGCVPTBE 66
XX
XX
RESULT 11
XX AAU08467
XX ID AAU08467 standard; Protein; 105 AA.
XX
XX AAU08467;
XX
XX 21-NOV-2001 (first entry)
XX
XX Polypeptide encoded by human VEGF-A/VEGF-C hybrid clone 14-9.
XX

```

```

XX
XX Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;
KM angiogenesis; blood vessel; cancer; proliferative retinopathy;
KM psoriasis; age-related macular degeneration; rheumatoid arthritis;
XX cardiovascular; VEGF-C; mutant; mutein.
XX
OS Homo sapiens.
OS Synthetic.
XX
XX WO200162942-A2.
XX
XX 30-AUG-2001.
XX
XX 26-FEB-2001; 2001WO-US06113.
XX
XX 25-FEB-2000; 2000US-0185205.
XX 18-MAY-2000; 2000US-0205331.
XX
XX (LUDW-) LUDWIG INST CANCER RES.
XX (LICN) LICENTIA OY.
XX
XX Alitalo K, Jeltsch MM;
XX
XX WPI; 2001-536640/59.
XX N-PSDB; AAS12886.
XX
XX Polypeptides that bind cellular receptors for vascular endothelial
PT growth factors, polynucleotides encoding them -
XX
XX Claim 42; Page 249; 261pp; English.
XX
XX The present invention relates to polypeptides that bind cellular
CC receptors for vascular endothelial growth factors (VEGFs), the
CC polynucleotides encoding them, and their use for identifying agents that
CC modulate interactions between VEGFs and their receptors. VEGFs and their
CC receptors play an important role in vasculogenesis, the development of
CC the embryonic vasculature from early differentiating endothelial cells
CC and angiogenesis, the process of forming new blood vessels from
CC pre-existing ones. Modulators of interactions between VEGF and its
CC receptors may be used to treat dysfunction of the endothelial cell
CC regulatory system. Such disorders include cancers, abnormal angiogenesis,
CC proliferative retinopathies, age-related macular degeneration, rheumatoid
CC arthritis and psoriasis. The polypeptides of the invention exhibit unique
CC receptor binding profiles compared to known naturally occurring VEGFs.
CC The present sequence represents the polypeptide encoded by human
CC VEGF-A/VEGF-C hybrid construct clone 14-9.
XX
XX
SQ Sequence 105 AA;
XX
XX Query Match 93.0%; Score 66; DB 22; Length 105;
XX Best Local Similarity 92.3%; Pred. No. 0.00087;
XX Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
XX
XX 1 CNDGLESVPTEER 13
XX |||||
XX 54 CNDGLEGCVPTBE 66
XX
XX
RESULT 12
XX AAU08473
XX ID AAU08473 standard; Protein; 105 AA.
XX
XX AAU08473;
XX
XX 21-NOV-2001 (first entry)
XX
XX Polypeptide encoded by human VEGF-A/VEGF-C hybrid clone 82-9.
XX
XX Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;
KM angiogenesis; blood vessel; cancer; proliferative retinopathy;
KM psoriasis; age-related macular degeneration; rheumatoid arthritis;
KM cardiovascular; VEGF-C; mutant; mutein.
XX

```

```

OS Homo sapiens.
OS Synthetic.
XX MO200162942-A2.
XX
XX 30-AUG-2001.
XX
XX 26-FEB-2001; 2001WO-US06113.
XX
XX 25-FEB-2000; 2000US-0185205.
XX 18-MAY-2000; 2000US-0205331.
XX
XX (LUDW-) LUDWIG INST CANCER RES.
XX (LICN) LICENTIA OY.
XX
XX Alitalo K, Jeltsch MM;
XX
XX WPI; 2001-536640/59.
XX DR N-PSDB; AAS12892.
XX
XX Polypeptides that bind cellular receptors for vascular endothelial
XX growth factors, polynucleotides encoding them -
XX
XX Claim 48; Page 255-256; 261pp; English.
XX
XX The present invention relates to polypeptides that bind cellular
XX receptors for vascular endothelial growth factors (VEGFs), the
XX polynucleotides encoding them, and their use for identifying agents that
XX modulate interactions between VEGFs and their receptors. VEGFs and their
XX receptors play an important role in vasculogenesis, the development of
XX the embryonic vasculature from early differentiating endothelial cells
XX and angiogenesis, the process of forming new blood vessels from
XX pre-existing ones. Modulators of interactions between VEGF and its
XX receptors may be used to treat dysfunction of the endothelial cell
XX regulatory system. Such disorders include cancers, abnormal angiogenesis,
XX proliferative retinopathies, age-related macular degeneration, rheumatoid
XX arthritis and psoriasis. The polypeptides of the invention exhibit unique
XX receptor binding profiles compared to known naturally occurring VEGFs.
XX CC The present sequence represents the polypeptide encoded by human
XX VEGF-A/VEGF-C hybrid construct clone 82-9.
XX
XX SQ Sequence 105 AA;
XX
XX Query Match 93.0%; Score 66; DB 22; Length 105;
XX Best Local Similarity 92.3%; Pred. No. 0.00087;
XX Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
XX
XX QY 1 CNDEGLSVPTEE 13
XX ||||| |||||
XX DB 54 CNDEGLECVTEE 66
XX
XX RESULT 13
XX AAU08475 standard; Protein; 105 AA.
XX
XX AC AAU08475;
XX
XX DT 21-NOV-2001 (first entry)
XX
XX DE Polypeptide encoded by human VEGF-A/VEGF-C hybrid clone 82-13.
XX
XX KW Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;
XX angiogenesis; blood vessel; cancer; proliferative retinopathy;
XX psoriasis; age-related macular degeneration; rheumatoid arthritis;
XX cardiovascular; VEGF-C; mutant; mutein.
XX
XX OS Homo sapiens.
XX OS Synthetic.
XX XX WO200162942-A2.
XX XX
XX XX 30-AUG-2001.
XX

```

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XX XX
XX 26-FEB-2001; 2001WO-US06113.
XX
XX 25-FEB-2000; 2000US-0185205.
XX 18-MAY-2000; 2000US-0205331.
XX
XX (LUDW-) LUDWIG INST CANCER RES.
XX (LICN) LICENTIA OY.
XX
XX Alitalo K, Jeltsch MM;
XX
XX WPI; 2001-536640/59.
XX DR N-PSDB; AAS12894.
XX
XX Polypeptides that bind cellular receptors for vascular endothelial
XX growth factors, polynucleotides encoding them -
XX
XX Claim 50; Page 258; 261pp; English.
XX
XX The present invention relates to polypeptides that bind cellular
XX receptors for vascular endothelial growth factors (VEGFs), the
XX polynucleotides encoding them, and their use for identifying agents that
XX modulate interactions between VEGFs and their receptors. VEGFs and their
XX receptors play an important role in vasculogenesis, the development of
XX the embryonic vasculature from early differentiating endothelial cells
XX and angiogenesis, the process of forming new blood vessels from
XX pre-existing ones. Modulators of interactions between VEGF and its
XX receptors may be used to treat dysfunction of the endothelial cell
XX regulatory system. Such disorders include cancers, abnormal angiogenesis,
XX proliferative retinopathies, age-related macular degeneration, rheumatoid
XX arthritis and psoriasis. The polypeptides of the invention exhibit unique
XX receptor binding profiles compared to known naturally occurring VEGFs.
XX CC The present sequence represents the polypeptide encoded by human
XX VEGF-A/VEGF-C hybrid construct clone 82-13.
XX
XX SQ Sequence 105 AA;
XX
XX Query Match 93.0%; Score 66; DB 22; Length 105;
XX Best Local Similarity 92.3%; Pred. No. 0.00087;
XX Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
XX
XX QY 1 CNDEGLSVPTEE 13
XX ||||| |||||
XX DB 54 CNDEGLECVTEE 66
XX
XX RESULT 14
XX AAU08477 standard; Protein; 105 AA.
XX
XX AC AAU08477;
XX
XX DT 21-NOV-2001 (first entry)
XX
XX DE Polypeptide encoded by human VEGF-A/VEGF-C hybrid clone 84-9.
XX
XX KW Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;
XX angiogenesis; blood vessel; cancer; proliferative retinopathy;
XX psoriasis; age-related macular degeneration; rheumatoid arthritis;
XX cardiovascular; VEGF-C; mutant; mutein.
XX
XX OS Homo sapiens.
XX OS Synthetic.
XX XX WO200162942-A2.
XX XX
XX XX 30-AUG-2001.
XX
XX 26-FEB-2001; 2001WO-US06113.
XX
XX 25-FEB-2000; 2000US-0185205.
XX 18-MAY-2000; 2000US-0205331.
XX

```

PA (LUDW-) LUDWIG INST CANCER RES.  
 PA (LIGN) LICENTIA OY.  
 PI Altalo K, Jeltsch MM;  
 DR WPI; 2001-536640/59.  
 DR N-PSDB; AAS12896.  
 XX Polypeptides that bind cellular receptors for vascular endothelial  
 PT growth factors, polynucleotides encoding them -  
 XX  
 PS Claim 52; Page 260; 261pp; English.  
 XX  
 CC The present invention relates to polypeptides that bind cellular  
 CC receptors for vascular endothelial growth factors (VEGFs), the  
 CC polynucleotides encoding them, and their use for identifying agents that  
 CC modulate interactions between VEGFs and their receptors. VEGFs and their  
 CC receptors play an important role in vasculogenesis, the development of  
 CC the embryonic vasculature from early differentiating endothelial cells  
 CC and angiogenesis, the process of forming new blood vessels from  
 CC pre-existing ones. Modulators of interactions between VEGF and its  
 CC receptors may be used to treat dysfunction of the endothelial cell  
 CC regulatory system. Such disorders include cancers, abnormal angiogenesis,  
 CC proliferative retinopathies, age-related macular degeneration, rheumatoid  
 CC arthritis and psoriasis. The polypeptides of the invention exhibit unique  
 CC receptor binding profiles compared to known naturally occurring VEGFs.  
 CC The present sequence represents the polypeptide encoded by human  
 CC VEGF-A/VEGF-C hybrid construct clone 84-9.  
 CC  
 XX  
 SQ Sequence 105 AA;  
 Query Match 93.0%; Score 66; DB 22; Length 105;  
 Best Local Similarity 92.3%; Pred. No. 0.00087;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 CNDGLESVPTEE 13  
 |||||  
 DB 54 CNDGELCVPTTE 66  
 |||||  
 RESULT 15  
 AAY69417  
 ID AAY69417 standard; Protein; 110 AA.  
 XX  
 AC AAY69417;  
 XX  
 DT 03-JUN-2000 (first entry)  
 DE  
 XX Amino acid sequence of vascular endothelial growth factor 110.  
 XX  
 KW Human; vascular endothelial growth factor; VEGF 110; angiogenic factor;  
 KW blood vessel injury; vascular injury; microvascular angiodysplasia;  
 KW thrombotic microangiopathy; kidney disease; haemolytic uremic syndrome;  
 KW toxic shock syndrome; venom; hypercoagulable state; platelet activation;  
 KW platelet aggregation; thrombosis; preclampsia; sepsis; pancreatitis;  
 KW intravascular coagulation; thrombotic thrombocytopenia purpura;  
 KW acute renal failure; myocardial infarction; ischemic bowel disease;  
 KW stroke; hypoxia; hypercapnia; fibrosis; toxic alveolar injury;  
 KW acute respiratory distress syndrome; pneumonia; pulmonary emboli;  
 KW birth prematurity disorder; wound; allergy; hypersensitivity;  
 KW autoimmune disease; organ transplant; focal glomerulosclerosis;  
 KW amyloidosis.  
 XX  
 OS Homo sapiens.  
 XX  
 FN WO200013702-A2.  
 XX  
 PD 16-MAR-2000.  
 XX  
 PF 09-SEP-1999; 99WO-US20480.  
 XX  
 PR 09-SEP-1998; 98US-0099694.  
 PR 26-MAR-1999; 99US-0126406.

PR 27-MAR-1999; 99US-0126615.  
 XX  
 XX  
 PA (SCIO-) SCIOS INC.  
 XX  
 PI Schreiner GF, Johnson RJ;  
 DR WPI; 2000-256861/22.  
 XX  
 XX Novel methods and compositions for the prevention and treatment of  
 PT microvascular angiodysplasies by administration of angiogenic factors such  
 PT as vascular endothelial growth factor (VEGF) -  
 XX  
 PS Disclosure; Fig 12; 46pp; English.  
 XX  
 CC The present sequence represents native human vascular endothelial growth  
 CC factor (VEGF) 110. VEGF is an angiogenic factor. VEGF proteins are used  
 CC for the prevention or repair of injury to blood vessels or associated  
 CC nonvascular tissues (served by the blood vessels) and for the prevention  
 CC and repair of vascular injury associated with microvascular angiodysplasia,  
 CC particularly thrombotic microangiopathy. The proteins methods may also  
 CC be used for the prevention and treatment of kidney diseases associated  
 CC with injury to, or atrophy of, the vasculature of the glomerulus and  
 CC interstitium. Conditions which may be treated include hemolytic uremic  
 CC syndrome, toxic shock syndrome, venom exposure, chemical exposure,  
 CC hypercoagulable states, platelet activation or aggregation, thrombosis,  
 CC preclampsia, thrombotic thrombocytopenia purpura, disseminated  
 CC intravascular coagulation, sepsis, pancreatitis, acute renal failure,  
 CC myocardial infarction, ischemic bowel disease, transient ischemic  
 CC attacks, stroke, hypoxia or hypercapnia or fibrosis arising from lung  
 CC endothelium injury, acute respiratory distress syndrome, toxic alveolar  
 CC injury, pneumonia, pulmonary emboli, birth prematurity disorders,  
 CC wounds, allergic reactions, hypersensitivity, autoimmune diseases, organ  
 CC transplants, focal glomerulosclerosis, and amyloidosis.  
 CC  
 XX  
 SQ Sequence 110 AA;  
 Query Match 93.0%; Score 66; DB 21; Length 110;  
 Best Local Similarity 92.3%; Pred. No. 0.00091;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 CNDGLESVPTEE 13  
 |||||  
 DB 61 CNDGELCVPTTE 73  
 |||||

Search completed: January 30, 2004, 11:40:08  
 Job time : 17.925 secs

GenCore version 5.1.6  
Copyright (c) 1993 - 2004 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: January 30, 2004, 11:35:33 ; Search time 5.5333 seconds  
(without alignments)  
99.405 Million cell updates/sec

Title: US-09-266-543-8

Perfect score: 71

Sequence: 1 CNDGLESVPTER 13

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 328717 seqs, 42310858 residues

Total number of hits satisfying chosen parameters: 328717

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database : Issued Patents, AA:\*

1: /cgn2\_6/ptodata/1/1aa/5A.COMB.pep:\*

2: /cgn2\_6/ptodata/1/1aa/5B.COMB.pep:\*

3: /cgn2\_6/ptodata/1/1aa/6A.COMB.pep:\*

4: /cgn2\_6/ptodata/1/1aa/6B.COMB.pep:\*

5: /cgn2\_6/ptodata/1/1aa/6C.COMB.pep:\*

6: /cgn2\_6/ptodata/1/1aa/6D.COMB.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	66	93.0	65	4	US-09-244-583-12
2	66	93.0	109	3	US-08-691-794-3
3	66	93.0	110	4	US-09-392-932-11
4	66	93.0	110	4	US-09-574-708A-11
5	66	93.0	110	4	US-09-822-270-17
6	66	93.0	121	6	5194596-19
7	66	93.0	121	6	5219739-20
8	66	93.0	136	4	US-09-037-983C-15
9	66	93.0	137	4	US-09-037-983C-17
10	66	93.0	138	4	US-09-037-983C-16
11	66	93.0	141	4	US-09-519-475-2
12	66	93.0	145	3	US-08-784-551C-2
13	66	93.0	145	3	US-09-392-932-2
14	66	93.0	145	4	US-09-574-708A-4
15	66	93.0	145	4	US-09-037-983C-2
16	66	93.0	147	3	US-08-807-992B-1
17	66	93.0	147	4	US-09-392-932-1
18	66	93.0	147	4	US-08-706-054A-4
19	66	93.0	147	4	US-09-574-708A-2
20	66	93.0	147	4	US-09-313-299-4
21	66	93.0	164	4	US-09-244-583-24
22	66	93.0	165	4	US-08-882-816-3
23	66	93.0	165	4	US-08-802-052B-3
24	66	93.0	165	6	5194596-18
25	66	93.0	165	6	5219739-19
26	66	93.0	188	4	US-09-244-583-28
27	66	93.0	191	3	US-08-567-200A-2

28	66	93.0	191	3	US-08-807-992B-2	Sequence 2, Appl1
29	66	93.0	191	3	US-08-691-794-2	Sequence 2, Appl1
30	66	93.0	191	3	US-08-795-430-56	Sequence 56, Appl1
31	66	93.0	191	4	US-09-392-932-3	Sequence 3, Appl1
32	66	93.0	191	4	US-09-355-700-56	Sequence 56, Appl1
33	66	93.0	191	4	US-08-882-816-2	Sequence 2, Appl1
34	66	93.0	191	4	US-09-574-708A-6	Sequence 6, Appl1
35	66	93.0	191	4	US-08-802-052B-2	Sequence 2, Appl1
36	66	93.0	191	6	5332671-4	Patent No. 5332671
37	66	93.0	208	4	US-09-244-583-26	Sequence 26, Appl1
38	66	93.0	213	4	US-09-574-708A-8	Sequence 8, Appl1
39	66	93.0	214	6	5240848-11	Patent No. 5240848
40	66	93.0	215	3	US-08-807-992B-3	Sequence 3, Appl1
41	66	93.0	215	3	US-08-586-039B-49	Sequence 49, Appl1
42	66	93.0	215	4	US-09-699-769-49	Sequence 49, Appl1
43	66	93.0	215	6	5219739-22	Patent No. 5219739
44	66	93.0	215	6	5240848-7	Patent No. 5240848
45	66	93.0	231	5	PCT-US96-09001-10	Sequence 10, Appl1

#### ALIGNMENTS

```

RESULT 1
US-09-244-583-12
; Sequence 12, Application US/09244583
; Patent No. 6479654
; GENERAL INFORMATION:
; APPLICANT: BAIRD, ANDREW
; TITLE OF INVENTION: NOVEL FORMS OF THE ANGIOGENIC FACTOR
; TITLE OF INVENTION: NOVEL FORMS OF THE ANGIOGENIC FACTOR
; FILE REFERENCE: 240/086
; CURRENT APPLICATION NUMBER: US/09/244,583
; CURRENT FILING DATE: 1999-02-04
; EARLIER APPLICATION NUMBER: 60/073,979
; EARLIER FILING DATE: 1998-02-06
; NUMBER OF SEQ ID NOS: 29
; SOFTWARE: FASTSEQ for Windows Version 3.0
; SEQ ID NO 12
; LENGTH: 65
; TYPE: PRT
; ORGANISM: Homo sapien
US-09-244-583-12

Query Match      93.0%; Score 66; DB 4; Length 65;
Best Local Similarity 92.3%; Pred. No. 0.00012;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY      1 CNDGLESVPTER 13
DB      47 CNDGLESVPTER 59

RESULT 2
US-08-691-794-3
; Sequence 3, Application US/08691794
; Patent No. 6057428
; GENERAL INFORMATION:
; APPLICANT: Keyt, Bruce A.
; APPLICANT: Nguyen, Francis H.
; APPLICANT: Ferrara, Napoleone
; APPLICANT: Cunningham, Brian C.
; APPLICANT: Wells, James A.
; APPLICANT: Li, Bing
; TITLE OF INVENTION: Variants of Vascular Endothelial Cell
; TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their
; TITLE OF INVENTION: Production
; NUMBER OF SEQUENCES: 45
; CORRESPONDENCE ADDRESS:
; ADDRESSER: Flehr, Hohbach, Test, Albritton & Herbert
; STREET: Four Embarcadero Center, Suite 3400
; CITY: San Francisco

```

STATE: California  
COUNTRY: United States  
ZIP: 94111-4187  
COMPUTER READABLE FORM:  
MEDIUM TYPE: floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/691,794  
FILING DATE: 02-AUG-1996  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 60/002,827  
FILING DATE: 25-AUG-1995  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/567,200  
FILING DATE: 05-DEC-1995  
ATTORNEY/AGENT INFORMATION:  
NAME: Dreger, Walter H.  
REGISTRATION NUMBER: 24,190  
REFERENCE/DOCKET NUMBER: A-63758/WHD  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 781-1989  
TELEFAX: (415) 398-3249  
TELEX: 910 277299  
INFORMATION FOR SEQ ID NO: 3:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 109 amino acids  
TYPE: amino acid  
STRANDEDNESS: unknown  
TOPOLOGY: unknown  
MOLECULE TYPE: protein  
US-08-691-794-3

Query Match 93.0%; Score 66; DB 3; Length 109;  
Best Local Similarity 92.3%; Pred. No. 0.00022;  
Matches 12; Conservative 0; Mismatches 1; Indels 0;

QY 1 CNDGLESVPTEE 13  
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Db 61 CNDGLECVPTTE 73

RESULT 3  
US-09-392-932-11  
Sequence 11, Application US/09392932  
Patent No. 6352975  
GENERAL INFORMATION:  
APPLICANT: Schreiner, George F.  
TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND  
FILE REFERENCE: SCIOS.002A  
CURRENT APPLICATION NUMBER: US/09/392,932  
CURRENT FILING DATE: 1999-09-09  
EARLIER APPLICATION NUMBER: 60/099,694  
EARLIER FILING DATE: 1998-09-09  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FASTSEQ for Windows Version 4.0  
SEQ ID NO 11  
LENGTH: 110  
TYPE: PRT  
ORGANISM: Homo Sapiens  
US-09-392-932-11

Query Match 93.0%; Score 66; DB 4; Length 110;  
Best Local Similarity 92.3%; Pred. No. 0.00022;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13  
|||||  
Db 61 CNDGLECVPTTE 73

RESULT 4  
US-09-574-708A-11  
Sequence 11, Application US/09574708A  
Patent No. 6475796  
GENERAL INFORMATION:  
APPLICANT: N. Stephen Pollitt  
TITLE OF INVENTION: Vascular endothelial growth factor  
FILE REFERENCE: SCIOS004A  
CURRENT APPLICATION NUMBER: US/09/574,708A  
CURRENT FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/135,312  
PRIOR FILING DATE: 1999-05-20  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FASTSEQ for Windows Version 4.0  
SEQ ID NO 11  
LENGTH: 110  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-574-708A-11

Query Match 93.0%; Score 66; DB 4; Length 110;  
Best Local Similarity 92.3%; Pred. No. 0.00022;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13  
|||||  
Db 61 CNDGLECVPTTE 73

RESULT 5  
US-09-822-270-17  
Sequence 17, Application US/09822270  
Patent No. 6559126  
GENERAL INFORMATION:  
APPLICANT: TOURNIAIRE, ROSELYNE  
APPLICANT: DEMANGEL, CAROLINE  
APPLICANT: DERBIN, CLAUDE  
APPLICANT: PERRER, GERARD  
APPLICANT: MAZIE, JEAN-CLAUDE  
APPLICANT: PLOUET, JEAN  
APPLICANT: VASSAY, ROGER  
TITLE OF INVENTION: PEPTIDES BLOCKING VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF)-MEDI  
FILE REFERENCE: 205060USO  
CURRENT APPLICATION NUMBER: US/09/822,270  
CURRENT FILING DATE: 2001-04-02  
PRIOR APPLICATION NUMBER: US 60/193,396  
PRIOR FILING DATE: 2000-03-31  
NUMBER OF SEQ ID NOS: 17  
SOFTWARE: Patentin version 3.1  
SEQ ID NO 17  
LENGTH: 110  
TYPE: PRT  
ORGANISM: ARTIFICIAL SEQUENCE  
FEATURE:  
OTHER INFORMATION: SYNTHETIC PEPTIDE  
US-09-822-270-17

Query Match 93.0%; Score 66; DB 4; Length 110;  
Best Local Similarity 92.3%; Pred. No. 0.00022;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13  
|||||  
Db 61 CNDGLECVPTTE 73

RESULT 6  
5194596-19

Patent No. 5194596  
 APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN  
 C.; MITCHELL, RICHARD L.  
 TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL  
 GROWTH FACTOR  
 NUMBER OF SEQUENCES: 32  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/07/450,883  
 FILING DATE: 14-DEC-1989  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: 387,545  
 FILING DATE: 27-JUL-1989  
 SEQ ID NO: 19  
 LENGTH: 121  
 5194596-19

Query Match 93.0%; Score 66; DB 6; Length 121;  
 Best Local Similarity 92.3%; Pred. No. 0.00025;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13  
 |||||  
 Db 61 CNDGLESVPTEE 73

# RESULT 7

5219739-20  
 Patent No. 5219739  
 APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,  
 JOHN C.; MITCHELL, RICHARD L.  
 TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGFI20 AND  
 BVGFI 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN  
 VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGFI20 AND BVGFI21  
 NUMBER OF SEQUENCES: 40  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/07/559,041  
 FILING DATE: 27-JUL-1990  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: 450,883  
 FILING DATE: 14-DEC-1989  
 APPLICATION NUMBER: 387,545  
 FILING DATE: 27-JUL-1989  
 SEQ ID NO: 20  
 LENGTH: 121  
 5219739-20

Query Match 93.0%; Score 66; DB 6; Length 121;  
 Best Local Similarity 92.3%; Pred. No. 0.00025;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13  
 |||||  
 Db 61 CNDGLESVPTEE 73

# RESULT 8

US-09-037-983C-15  
 Sequence 15, Application US/09037983C  
 Patent No. 6583276  
 GENERAL INFORMATION:  
 APPLICANT: Newfield, Gera  
 APPLICANT: Keshet, Eli  
 APPLICANT: Vlodavsky, Israel  
 APPLICANT: Poltorak, Zoya  
 TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease  
 FILE REFERENCE: 000274-00009  
 CURRENT APPLICATION NUMBER: US/09/037,983C  
 CURRENT FILING DATE: 1998-03-11  
 PRIOR APPLICATION NUMBER: 60/025,537  
 PRIOR FILING DATE: 1996-09-06  
 NUMBER OF SEQ ID NOS: 17  
 SOFTWARE: PatentIn version 3.1  
 SEQ ID NO 15

LENGTH: 136  
 TYPE: PRT  
 ORGANISM: Homo sapiens  
 US-09-037-983C-15

Query Match 93.0%; Score 66; DB 4; Length 136;  
 Best Local Similarity 92.3%; Pred. No. 0.00028;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13  
 |||||  
 Db 61 CNDGLESVPTEE 73

# RESULT 9

US-09-037-983C-17  
 Sequence 17, Application US/09037983C  
 Patent No. 6583276  
 GENERAL INFORMATION:  
 APPLICANT: Newfield, Gera  
 APPLICANT: Keshet, Eli  
 APPLICANT: Vlodavsky, Israel  
 APPLICANT: Poltorak, Zoya  
 TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease  
 FILE REFERENCE: 000274-00009  
 CURRENT APPLICATION NUMBER: US/09/037,983C  
 CURRENT FILING DATE: 1998-03-11  
 PRIOR APPLICATION NUMBER: 60/025,537  
 PRIOR FILING DATE: 1996-09-06  
 NUMBER OF SEQ ID NOS: 17  
 SOFTWARE: PatentIn version 3.1  
 SEQ ID NO 17  
 LENGTH: 137  
 TYPE: PRT  
 ORGANISM: Homo sapiens  
 US-09-037-983C-17

Query Match 93.0%; Score 66; DB 4; Length 137;  
 Best Local Similarity 92.3%; Pred. No. 0.00029;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13  
 |||||  
 Db 61 CNDGLESVPTEE 73

# RESULT 10

US-09-037-983C-16  
 Sequence 16, Application US/09037983C  
 Patent No. 6583276  
 GENERAL INFORMATION:  
 APPLICANT: Newfield, Gera  
 APPLICANT: Keshet, Eli  
 APPLICANT: Vlodavsky, Israel  
 APPLICANT: Poltorak, Zoya  
 TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease  
 FILE REFERENCE: 000274-00009  
 CURRENT APPLICATION NUMBER: US/09/037,983C  
 CURRENT FILING DATE: 1998-03-11  
 PRIOR APPLICATION NUMBER: 60/025,537  
 PRIOR FILING DATE: 1996-09-06  
 NUMBER OF SEQ ID NOS: 17  
 SOFTWARE: PatentIn version 3.1  
 SEQ ID NO 16  
 LENGTH: 138  
 TYPE: PRT  
 ORGANISM: Homo sapiens  
 US-09-037-983C-16

Query Match 93.0%; Score 66; DB 4; Length 138;  
 Best Local Similarity 92.3%; Pred. No. 0.00029;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTPE 13  
|||||  
Db 61 CNDGLESVPTPE 73

RESULT 11  
US-09-519-476-2  
; Sequence 2, Application US/09519476  
; Patent No. 6506884  
; GENERAL INFORMATION:  
; APPLICANT: MINTZ, Liat et al.  
; TITLE OF INVENTION: NOVEL NUCLEIC ACID AND AMINO ACID SEQUENCES  
; FILE REFERENCE: 2786-0149P  
; CURRENT APPLICATION NUMBER: US/09/519,476  
; PRIOR FILING DATE: 2000-03-09  
; PRIOR APPLICATION NUMBER: IL128852  
; NUMBER OF SEQ ID NOS: 2  
; SOFTWARE: Patentin version 3.0  
; SEQ ID NO 2  
; LENGTH: 141  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-09-519-476-2

Query Match 93.0%; Score 66; DB 4; Length 141;  
Best Local Similarity 92.3%; Pred. No. 0.0003;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTPE 13  
|||||  
Db 87 CNDGLESVPTPE 99

RESULT 12  
US-08-784-551C-2  
; Sequence 2, Application US/08784551C  
; Patent No. 6013780  
; GENERAL INFORMATION:  
; APPLICANT: Gera Neufeld  
; APPLICANT: Eli Keshet  
; APPLICANT: Israel Vlodavsky  
; APPLICANT: Zoya Poltorak  
; TITLE OF INVENTION: ANGIOGENIC FACTOR AND USE THEREOF  
; TITLE OF INVENTION: IN TREATING CARDIOVASCULAR DISEASE  
; NUMBER OF SEQUENCES: 9  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Blank, Rome, Comisky & McCauley LLP  
; STREET: 900 17th Street, N.W.  
; CITY: Washington, D.C.  
; STATE: N/A  
; COUNTRY: U.S.A.  
; ZIP: 20006  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: 3.5" Diskette, 1.44 Mb  
; MEDIUM TYPE: Storage  
; OPERATING SYSTEM: IBM P.C. DOS 5.0  
; SOFTWARE: FastSeq for Windows 2.0  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/784,551C  
; FILING DATE: January 21, 1997  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER:  
; FILING DATE:  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Cohen, Herbert  
; REGISTRATION NUMBER: 25,109  
; REFERENCE/DOCKET NUMBER: 0274-.005/P003  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (202) 463-7700

TELEFAX: (202) 463-6915  
; TELEX:  
; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 145 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
US-08-784-551C-2

Query Match 93.0%; Score 66; DB 3; Length 145;  
Best Local Similarity 92.3%; Pred. No. 0.00031;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTPE 13  
|||||  
Db 61 CNDGLESVPTPE 73

RESULT 13  
US-09-392-932-2  
; Sequence 2, Application US/09392932  
; Patent No. 6352975  
; GENERAL INFORMATION:  
; APPLICANT: Schreiner, George F.  
; APPLICANT: Johnson, Richard J.  
; TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND  
; TITLE OF INVENTION: COMPOSITIONS FOR USE THEREIN  
; FILE REFERENCE: SCIOS.002A  
; CURRENT APPLICATION NUMBER: US/09/392,932  
; CURRENT FILING DATE: 1999-09-09  
; EARLIER APPLICATION NUMBER: 60/099,694  
; EARLIER FILING DATE: 1998-09-09  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 2  
; LENGTH: 145  
; TYPE: PRT  
; ORGANISM: Homo Sapiens  
US-09-392-932-2

Query Match 93.0%; Score 66; DB 4; Length 145;  
Best Local Similarity 92.3%; Pred. No. 0.00031;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTPE 13  
|||||  
Db 61 CNDGLESVPTPE 73

RESULT 14  
US-09-574-708A-4  
; Sequence 4, Application US/09574708A  
; Patent No. 6475796  
; GENERAL INFORMATION:  
; APPLICANT: N. Stephen Pollitt  
; APPLICANT: Judith A. Abraham  
; TITLE OF INVENTION: Vascular endothelial growth factor  
; TITLE OF INVENTION: Variants  
; FILE REFERENCE: SCIOS004A  
; CURRENT APPLICATION NUMBER: US/09/574,708A  
; CURRENT FILING DATE: 2000-05-18  
; PRIOR APPLICATION NUMBER: US 60/135,312  
; PRIOR FILING DATE: 1999-05-20  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 4  
; LENGTH: 145  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-09-574-708A-4

Query Match 93.0%; Score 66; DB 4; Length 145;



Best Local Similarity 92.3%; Pred. No. 0.00031;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTEE 13  
|||  
Db 61 CNDEGLECCVPTTE 73

## RESULT 15

US-09-037-983C-2  
; Sequence 2, Application US/09037983C  
; Patent No. 6583276  
; GENERAL INFORMATION:  
; APPLICANT: Newfeld, Gera  
; APPLICANT: Keahet, Eli  
; APPLICANT: Vlodayevsky, Israel  
; APPLICANT: Poltorak, Zoya  
; TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease  
; FILE REFERENCE: 000274-00009  
; CURRENT APPLICATION NUMBER: US/09/037,983C  
; CURRENT FILING DATE: 1998-03-11  
; PRIOR APPLICATION NUMBER: 60/025,537  
; PRIOR FILING DATE: 1996-09-06  
; NUMBER OF SEQ ID NOS: 17  
; SOFTWARE: PatentIn version 3.1  
; SEQ ID NO 2  
; LENGTH: 145  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-09-037-983C-2

Query Match 93.0%; Score 66; DB 4; Length 145;  
Best Local Similarity 92.3%; Pred. No. 0.00031;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTEE 13  
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Db 61 CNDEGLECCVPTTE 73

Search completed: January 30, 2004, 11:47:52  
Job time : 5.53333 secs



GenCore version 5.1.6  
Copyright (c) 1993 - 2004 Compugen Ltd.

OM protein - protein search, using SW model

Run on: January 30, 2004, 11:44:49 ; Search time 12.8667 Seconds  
(without alignments)  
209.978 Million cell updates/sec

Title: US-09-266-543-8  
Perfect score: 71  
Sequence: 1 CNDEGLSVPTPE 13

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 789580 seqs, 207824079 residues  
Total number of hits satisfying chosen parameters: 789580

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

Published Applications\_AA:\*

- 1: /cgn2\_6/ptodata/2/pubpaa/US07\_PUBCOMB.pep:\*
- 2: /cgn2\_6/ptodata/2/pubpaa/PCIT\_NEW\_PUB.pep:\*
- 3: /cgn2\_6/ptodata/2/pubpaa/US06\_NEW\_PUB.pep:\*
- 4: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep:\*
- 5: /cgn2\_6/ptodata/2/pubpaa/US07\_NEW\_PUB.pep:\*
- 6: /cgn2\_6/ptodata/2/pubpaa/PCITUS\_PUBCOMB.pep:\*
- 7: /cgn2\_6/ptodata/2/pubpaa/US08\_NEW\_PUB.pep:\*
- 8: /cgn2\_6/ptodata/2/pubpaa/US08\_PUBCOMB.pep:\*
- 9: /cgn2\_6/ptodata/2/pubpaa/US09A\_PUBCOMB.pep:\*
- 10: /cgn2\_6/ptodata/2/pubpaa/US09B\_PUBCOMB.pep:\*
- 11: /cgn2\_6/ptodata/2/pubpaa/US09C\_PUBCOMB.pep:\*
- 12: /cgn2\_6/ptodata/2/pubpaa/US09C\_NEW\_PUB.pep:\*
- 13: /cgn2\_6/ptodata/2/pubpaa/US10A\_PUBCOMB.pep:\*
- 14: /cgn2\_6/ptodata/2/pubpaa/US10B\_PUBCOMB.pep:\*
- 15: /cgn2\_6/ptodata/2/pubpaa/US10C\_PUBCOMB.pep:\*
- 16: /cgn2\_6/ptodata/2/pubpaa/US10\_NEW\_PUB.pep:\*
- 17: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep:\*
- 18: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	66	93.0	47	14	US-10-139-876-13
2	66	93.0	65	12	US-10-293-157-12
3	66	93.0	79	14	US-10-086-623-14
4	66	93.0	79	15	US-10-260-539-14
5	66	93.0	94	9	US-09-761-636A-2
6	66	93.0	100	12	US-10-034-749-2847
7	66	93.0	101	11	US-09-832-355A-2
8	66	93.0	105	9	US-09-925-299-927
9	66	93.0	105	10	US-09-795-006A-51
10	66	93.0	105	10	US-09-795-006A-59
11	66	93.0	105	10	US-09-795-006A-153
12	66	93.0	105	10	US-09-795-006A-165
13	66	93.0	105	10	US-09-795-006A-169
14	66	93.0	105	10	US-09-795-006A-173
15	66	93.0	105	11	US-09-925-299-927

16	66	93.0	110	9	US-09-822-270-17	Sequence 17, Appl
17	66	93.0	110	12	US-10-342-371-17	Sequence 17, Appl
18	66	93.0	110	12	US-10-392-931-10	Sequence 10, Appl
19	66	93.0	110	12	US-10-392-931-11	Sequence 11, Appl
20	66	93.0	110	12	US-10-418-529-10	Sequence 10, Appl
21	66	93.0	110	12	US-10-418-529-11	Sequence 11, Appl
22	66	93.0	110	14	US-10-083-817-11	Sequence 11, Appl
23	66	93.0	110	15	US-10-268-447-11	Sequence 11, Appl
24	66	93.0	121	11	US-09-832-355A-1	Sequence 1, Appl
25	66	93.0	125	10	US-09-795-006A-43	Sequence 43, Appl
26	66	93.0	127	10	US-09-795-006A-47	Sequence 47, Appl
27	66	93.0	127	10	US-09-795-006A-83	Sequence 83, Appl
28	66	93.0	127	10	US-09-795-006A-91	Sequence 91, Appl
29	66	93.0	128	10	US-09-795-006A-67	Sequence 67, Appl
30	66	93.0	128	10	US-09-795-006A-75	Sequence 75, Appl
31	66	93.0	129	10	US-09-795-006A-99	Sequence 99, Appl
32	66	93.0	129	10	US-09-795-006A-107	Sequence 107, Appl
33	66	93.0	141	15	US-10-298-794-2	Sequence 2, Appl
34	66	93.0	145	12	US-10-319-828-2	Sequence 2, Appl
35	66	93.0	145	12	US-10-392-931-4	Sequence 4, Appl
36	66	93.0	145	12	US-10-418-529-4	Sequence 4, Appl
37	66	93.0	145	14	US-10-083-817-2	Sequence 2, Appl
38	66	93.0	145	15	US-10-268-447-4	Sequence 4, Appl
39	66	93.0	147	12	US-10-346-802-4	Sequence 4, Appl
40	66	93.0	147	12	US-10-392-931-2	Sequence 2, Appl
41	66	93.0	147	12	US-10-418-529-2	Sequence 2, Appl
42	66	93.0	147	14	US-10-083-817-1	Sequence 1, Appl
43	66	93.0	147	15	US-10-268-447-2	Sequence 2, Appl
44	66	93.0	150	11	US-09-832-355A-61	Sequence 61, Appl
45	66	93.0	154	11	US-09-832-355A-59	Sequence 59, Appl

#### ALIGNMENTS

RESULT 1  
US-10-139-876-13  
; Sequence 13, Application US/10139876  
; Publication No US20020123481A1  
GENERAL INFORMATION:  
; APPLICANT: Oliviero, Salvatore  
; TITLE OF INVENTION: C-Fos Induced Growth Factor (Figf) And Dna Encoding Same  
; FILE REFERENCE: 35784/205172  
; CURRENT APPLICATION NUMBER: US/10/139, 876  
; CURRENT FILING DATE: 2002-05-07  
; PRIOR APPLICATION NUMBER: 09/043, 476  
; PRIOR FILING DATE: 1998-03-18  
; PRIOR APPLICATION NUMBER: PCT/IB96/0113  
; PRIOR FILING DATE: 1996-09-30  
; PRIOR APPLICATION NUMBER: GB9612368.2  
; PRIOR FILING DATE: 1996-06-13  
; PRIOR APPLICATION NUMBER: GB9519928.7  
; PRIOR FILING DATE: 1995-09-29  
; NUMBER OF SEQ ID NOS: 20  
; SOFTWARE: FASTSEQ for Windows Version 4.0  
; SEQ ID NO 13  
; LENGTH: 47  
; TYPE: PRT  
; ORGANISM: unknown  
; FEATURE:  
; OTHER INFORMATION: mammalian  
; FEATURE:  
; NAME/KEY: PEPTIDE  
; LOCATION: (1)...(47)  
; OTHER INFORMATION: segment of VEGF  
US-10-139-876-13

Query Match 93.0%; Score 66; DB 14; Length 47;  
Best Local Similarity 92.3%; Pred. No. 0.00016;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
Cy 1 CNDEGLSVPTPE 13  
|||||

Db 1 CNDEGLBCVPTRE 13

# RESULT 2

US-10-293-157-12  
 ; Sequence 12, Application US/10293157  
 ; Publication No. US20030144200A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: BAIRD, ANDREW  
 ; APPLICANT: ANDREASON, GRAI  
 ; TITLE OF INVENTION: NOVEL FORMS OF THE ANGIOGENIC FACTOR  
 ; FILE REFERENCE: 240/086  
 ; CURRENT APPLICATION NUMBER: US/10/293,157  
 ; PRIOR FILING DATE: 2002-11-12  
 ; PRIOR APPLICATION NUMBER: US/09/244,583  
 ; PRIOR FILING DATE: 1999-02-04  
 ; PRIOR APPLICATION NUMBER: 60/073,979  
 ; PRIOR FILING DATE: 1998-02-06  
 ; NUMBER OF SEQ ID NOS: 29  
 ; SOFTWARE: PatSeq for Windows Version 3.0  
 ; SEQ ID NO 12  
 ; LENGTH: 65  
 ; TYPE: PRT  
 ; ORGANISM: Homo sapiens  
 US-10-293-157-12

Query Match 93.0%; Score 66; DB 12; Length 65;  
 Best Local Similarity 92.3%; Pred. No. 0.00026;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLBCVPTRE 13

Db 47 CNDEGLBCVPTRE 59

# RESULT 3

US-10-086-623-14  
 ; Sequence 14, Application US/10086623  
 ; Publication No. US20020164710A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: ERIKSSON, Ulf  
 ; APPLICANT: AASE, Karin  
 ; APPLICANT: LI, Xuri  
 ; APPLICANT: PONTEN, Annica  
 ; APPLICANT: TUTELA, Marko  
 ; APPLICANT: ALITALO, Kari  
 ; APPLICANT: OESTMAN, Arne  
 ; APPLICANT: HELDIN, Carl-Henrik  
 ; TITLE OF INVENTION: PLATELET DERIVED GROWTH FACTOR D, DNA CODING THEREFOR AND USES TH  
 ; FILE REFERENCE: 1064/44833C2  
 ; CURRENT APPLICATION NUMBER: US/10/086,623  
 ; CURRENT FILING DATE: 2000-03-04  
 ; PRIOR APPLICATION NUMBER: US 60/107,852  
 ; PRIOR FILING DATE: 1998-11-10  
 ; PRIOR APPLICATION NUMBER: US 60/113,997  
 ; PRIOR FILING DATE: 1998-12-28  
 ; PRIOR APPLICATION NUMBER: US 60/150,604  
 ; PRIOR FILING DATE: 1999-08-26  
 ; PRIOR APPLICATION NUMBER: US 60/157,108  
 ; PRIOR FILING DATE: 1999-10-04  
 ; PRIOR APPLICATION NUMBER: US 60/157,756  
 ; PRIOR FILING DATE: 1999-10-05  
 ; PRIOR APPLICATION NUMBER: US 09/438,046  
 ; PRIOR FILING DATE: 1999-11-10  
 ; PRIOR APPLICATION NUMBER: US 09/691,200  
 ; PRIOR FILING DATE: 2000-10-19  
 ; NUMBER OF SEQ ID NOS: 42  
 ; SOFTWARE: Patent version 3.1  
 ; SEQ ID NO 14  
 ; LENGTH: 79  
 ; TYPE: PRT  
 ; ORGANISM: Homo sapiens

FEATURE:  
 ; NAME/KEY: misc feature  
 ; OTHER INFORMATION: PDGF/VEGF-homology domain of VEGF-165  
 US-10-086-623-14

Query Match 93.0%; Score 66; DB 14; Length 79;  
 Best Local Similarity 92.3%; Pred. No. 0.00032;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLBCVPTRE 13

Db 36 CNDEGLBCVPTRE 48

# RESULT 4

US-10-260-539-14  
 ; Sequence 14, Application US/10260539  
 ; Publication No. US20030073637A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: ERIKSSON, Ulf  
 ; APPLICANT: AASE, Karin  
 ; APPLICANT: LI, Xuri  
 ; APPLICANT: PONTEN, Annica  
 ; APPLICANT: TUTELA, Marko  
 ; APPLICANT: ALITALO, Kari  
 ; APPLICANT: OESTMAN, Arne  
 ; APPLICANT: HELDIN, Carl-Henrik  
 ; TITLE OF INVENTION: PLATELET DERIVED GROWTH FACTOR D, DNA CODING THEREFOR AND USES TH  
 ; FILE REFERENCE: 1064/44833C2  
 ; CURRENT APPLICATION NUMBER: US/10/260,539  
 ; CURRENT FILING DATE: 2002-10-01  
 ; PRIOR APPLICATION NUMBER: US/10/086,623  
 ; PRIOR FILING DATE: 2000-03-04  
 ; PRIOR APPLICATION NUMBER: US 60/107,852  
 ; PRIOR FILING DATE: 1998-11-10  
 ; PRIOR APPLICATION NUMBER: US 60/113,997  
 ; PRIOR FILING DATE: 1998-12-28  
 ; PRIOR APPLICATION NUMBER: US 60/150,604  
 ; PRIOR FILING DATE: 1999-08-26  
 ; PRIOR APPLICATION NUMBER: US 60/157,108  
 ; PRIOR FILING DATE: 1999-10-04  
 ; PRIOR APPLICATION NUMBER: US 60/157,756  
 ; PRIOR FILING DATE: 1999-10-05  
 ; PRIOR APPLICATION NUMBER: US 09/438,046  
 ; PRIOR FILING DATE: 1999-11-10  
 ; PRIOR APPLICATION NUMBER: US 09/691,200  
 ; PRIOR FILING DATE: 2000-10-19  
 ; NUMBER OF SEQ ID NOS: 42  
 ; SOFTWARE: Patent version 3.1  
 ; SEQ ID NO 14  
 ; LENGTH: 79  
 ; TYPE: PRT  
 ; ORGANISM: Homo sapiens  
 ; FEATURE:  
 ; NAME/KEY: misc feature  
 ; OTHER INFORMATION: PDGF/VEGF-homology domain of VEGF-165  
 US-10-260-539-14

Query Match 93.0%; Score 66; DB 15; Length 79;  
 Best Local Similarity 92.3%; Pred. No. 0.00032;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLBCVPTRE 13

Db 36 CNDEGLBCVPTRE 48

# RESULT 5

US-09-761-636A-2  
 ; Sequence 2, Application US/09761636A  
 ; Patent No. US20020065218A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: ACHEN, Marc

APPLICANT: STACKER, Steven  
APPLICANT: HUGHES, Richard  
APPLICANT: CENDRON, Angela  
TITLE OF INVENTION: VEGF-D/VEGF-C/VEGF PEPTIDOMIMETIC INHIBITOR  
FILE REFERENCE: 1064/48505 Achen et al  
CURRENT APPLICATION NUMBER: US/09/761,636A  
CURRENT FILING DATE: 2001-01-18  
PRIOR APPLICATION NUMBER: US 60/176,293  
PRIOR FILING DATE: 2000-01-18  
PRIOR APPLICATION NUMBER: US 60/204,590  
PRIOR FILING DATE: 2000-05-16  
NUMBER OF SEQ ID NOS: 34  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 2  
LENGTH: 94  
TYPE: PRT  
ORGANISM: Homo sapiens  
FEATURE:  
NAME/KEY: misc feature  
OTHER INFORMATION: Amino acid residues Lys42-Asp135 of VEGF165  
US-09-761-636A-2

Query Match 93.0%; Score 66; DB 9; Length 94;  
Best Local Similarity 92.3%; Pred. No. 0.00039;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEE 13  
|||||  
Db 46 CNDGLEGCPTEE 58

RESULT 6  
US-10-094-749-2847  
Sequence 2847, Application US/10094749  
Publication No. US20030219741A1  
GENERAL INFORMATION:  
APPLICANT: ISOGAI, TAKAO  
APPLICANT: SUGIYAMA, TOMOYASU  
APPLICANT: OTSUKI, TETSUJI  
APPLICANT: MAKAMATSU, AI  
APPLICANT: SATO, HIROYUKI  
APPLICANT: ISHII, SHIZUKO  
APPLICANT: YAMAMOTO, JUN-ICHI  
APPLICANT: ISOMO, YUUKO  
APPLICANT: HIO, YURI  
APPLICANT: OTSUKA, KAORU  
APPLICANT: NAGAI, KEIICHI  
APPLICANT: IRIE, RYOTARO  
APPLICANT: TAMECHIKA, ICHIRO  
APPLICANT: SEKI, NAOHICO  
APPLICANT: YOSHITAKA, TSUTOMU  
APPLICANT: OTSUKA, MOTORYUKI  
APPLICANT: NAGAHARI, KENJI  
APPLICANT: MASUHO, YASUHIKO  
TITLE OF INVENTION: NOVEL FULL-LENGTH CDNA  
FILE REFERENCE: 084335/0160  
CURRENT APPLICATION NUMBER: US/10/094,749  
CURRENT FILING DATE: 2002-03-12  
PRIOR APPLICATION NUMBER: 60/350,435  
PRIOR FILING DATE: 2002-01-24  
PRIOR APPLICATION NUMBER: JP 2001-328381  
PRIOR FILING DATE: 2001-09-14  
NUMBER OF SEQ ID NOS: 3381  
SOFTWARE: PatentIn Ver. 2.1  
SEQ ID NO 2847  
LENGTH: 100  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-10-094-749-2847

Query Match 93.0%; Score 66; DB 12; Length 100;  
Best Local Similarity 92.3%; Pred. No. 0.00042;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEE 13  
|||||  
Db 44 CNDGLEGCPTEE 56

RESULT 7  
US-09-832-355A-2  
Sequence 2, Application US/09832355A  
Publication No. US20030027751A1  
GENERAL INFORMATION:  
APPLICANT: Kovesdi, Imre  
APPLICANT: Keesler, Paul  
TITLE OF INVENTION: VEGF FUSION PROTEINS  
FILE REFERENCE: 205654  
CURRENT APPLICATION NUMBER: US/09/832,355A  
CURRENT FILING DATE: 2001-04-10  
NUMBER OF SEQ ID NOS: 126  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 2  
LENGTH: 101  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-832-355A-2

Query Match 93.0%; Score 66; DB 11; Length 101;  
Best Local Similarity 92.3%; Pred. No. 0.00042;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEE 13  
|||||  
Db 53 CNDGLEGCPTEE 65

RESULT 8  
US-09-925-299-927  
Sequence 927, Application US/09925299  
Patent No. US20020055627A1  
GENERAL INFORMATION:  
APPLICANT: Rosen et al.  
TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies  
FILE REFERENCE: PA102  
CURRENT APPLICATION NUMBER: US/09/925,299  
CURRENT FILING DATE: 2001-08-10  
PRIOR APPLICATION NUMBER: PCT/US00/05883  
PRIOR FILING DATE: 2000-03-08  
PRIOR APPLICATION NUMBER: 60/124,270  
PRIOR FILING DATE: 1999-03-12  
NUMBER OF SEQ ID NOS: 1556  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 927  
LENGTH: 105  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-925-299-927

Query Match 93.0%; Score 66; DB 9; Length 105;  
Best Local Similarity 92.3%; Pred. No. 0.00044;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEE 13  
|||||  
Db 45 CNDGLEGCPTEE 57

RESULT 9  
US-09-795-006A-51  
Sequence 51, Application US/09795006A  
Patent No. US20020151680A1  
GENERAL INFORMATION:  
APPLICANT: Alicata et al  
TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR  
TITLE OF INVENTION: ENDOTHELIAL GROWTH FACTOR DNAs AND PROTEINS

FILE REFERENCE: 28967/35977B  
CURRENT APPLICATION NUMBER: US/09/795,006A  
CURRENT FILING DATE: 2001-02-26  
PRIOR APPLICATION NUMBER: US 60/205,331  
PRIOR FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/185,205  
PRIOR FILING DATE: 2000-02-25  
NUMBER OF SEQ ID NOS: 175  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 51  
LENGTH: 105  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: amino acid sequence of hybrid  
US-09-795-006A-51

Query Match 93.0%; Score 66; DB 10; Length 105;  
Best Local Similarity 92.3%; Pred. No. 0.00044;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTTE 13  
Db 54 CNDGELCVPTTE 66

RESULT 10  
US-09-795-006A-59  
Sequence 59, Application US/09795006A  
Patent No. US20020151680A1  
GENERAL INFORMATION:  
APPLICANT: Alltalo et al  
TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR  
FILE REFERENCE: 28967/35977B  
CURRENT APPLICATION NUMBER: US/09/795,006A  
CURRENT FILING DATE: 2001-02-26  
PRIOR APPLICATION NUMBER: US 60/205,331  
PRIOR FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/185,205  
PRIOR FILING DATE: 2000-02-25  
NUMBER OF SEQ ID NOS: 175  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 59  
LENGTH: 105  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: amino acid sequence of hybrid  
US-09-795-006A-59

Query Match 93.0%; Score 66; DB 10; Length 105;  
Best Local Similarity 92.3%; Pred. No. 0.00044;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTTE 13  
Db 54 CNDGELCVPTTE 66

RESULT 11  
US-09-795-006A-153  
Sequence 153, Application US/09795006A  
Patent No. US20020151680A1  
GENERAL INFORMATION:  
APPLICANT: Alltalo et al  
TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR  
FILE REFERENCE: 28967/35977B  
CURRENT APPLICATION NUMBER: US/09/795,006A  
CURRENT FILING DATE: 2001-02-26  
PRIOR APPLICATION NUMBER: US 60/205,331  
PRIOR FILING DATE: 2000-05-18

PRIOR APPLICATION NUMBER: US 60/185,205  
PRIOR FILING DATE: 2000-02-25  
NUMBER OF SEQ ID NOS: 175  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 153  
LENGTH: 105  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: amino acid sequence of hybrid  
US-09-795-006A-153

Query Match 93.0%; Score 66; DB 10; Length 105;  
Best Local Similarity 92.3%; Pred. No. 0.00044;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTTE 13  
Db 54 CNDGELCVPTTE 66

RESULT 12  
US-09-795-006A-165  
Sequence 165, Application US/09795006A  
Patent No. US20020151680A1  
GENERAL INFORMATION:  
APPLICANT: Alltalo et al  
TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR  
FILE REFERENCE: 28967/35977B  
CURRENT APPLICATION NUMBER: US/09/795,006A  
CURRENT FILING DATE: 2001-02-26  
PRIOR APPLICATION NUMBER: US 60/205,331  
PRIOR FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/185,205  
PRIOR FILING DATE: 2000-02-25  
NUMBER OF SEQ ID NOS: 175  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 165  
LENGTH: 105  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: amino acid sequence of hybrid  
US-09-795-006A-165

Query Match 93.0%; Score 66; DB 10; Length 105;  
Best Local Similarity 92.3%; Pred. No. 0.00044;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTTE 13  
Db 54 CNDGELCVPTTE 66

RESULT 13  
US-09-795-006A-169  
Sequence 169, Application US/09795006A  
Patent No. US20020151680A1  
GENERAL INFORMATION:  
APPLICANT: Alltalo et al  
TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR  
FILE REFERENCE: 28967/35977B  
CURRENT APPLICATION NUMBER: US/09/795,006A  
CURRENT FILING DATE: 2001-02-26  
PRIOR APPLICATION NUMBER: US 60/205,331  
PRIOR FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/185,205  
PRIOR FILING DATE: 2000-02-25  
NUMBER OF SEQ ID NOS: 175  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 169

LENGTH: 105  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: amino acid sequence of hybrid  
US-09-795-006A-169

Query Match 93.0%; Score 66; DB 10; Length 105;  
Best Local Similarity 92.3%; Pred. No. 0.00044;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTTE 13  
|||  
DB 54 CNDGLEGCVPTTE 66

RESULT 14  
US-09-795-006A-173  
Sequence 173, Application US/09795006A  
Patent No. US20020151680A1  
GENERAL INFORMATION:  
APPLICANT: Aitalo et al  
TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR  
FILE REFERENCE: 28967/35977B  
CURRENT APPLICATION NUMBER: US/09/795,006A  
PRIOR FILING DATE: 2001-02-26  
PRIOR APPLICATION NUMBER: US 60/205,331  
PRIOR FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/185,205  
PRIOR FILING DATE: 2000-02-25  
NUMBER OF SEQ ID NOS: 175  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 173  
LENGTH: 105  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: amino acid sequence of hybrid  
US-09-795-006A-173

Query Match 93.0%; Score 66; DB 10; Length 105;  
Best Local Similarity 92.3%; Pred. No. 0.00044;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTTE 13  
|||  
DB 54 CNDGLEGCVPTTE 66

RESULT 15  
US-09-925-299-927  
Sequence 927, Application US/09925299  
Publication No. US20030040617A9  
GENERAL INFORMATION:  
APPLICANT: Rosen et al  
TITLE OF INVENTION: Nucleic Acids, Proteins and Anticodones  
FILE REFERENCE: PA102  
CURRENT APPLICATION NUMBER: US/09/925,299  
CURRENT FILING DATE: 2001-08-10  
PRIOR APPLICATION NUMBER: PCT/US00/05883  
PRIOR FILING DATE: 2000-03-08  
PRIOR APPLICATION NUMBER: 60/124,270  
PRIOR FILING DATE: 1999-03-12  
NUMBER OF SEQ ID NOS: 1556  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 927  
LENGTH: 105  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-925-299-927

Query Match 93.0%; Score 66; DB 11; Length 105;

Best Local Similarity 92.3%; Pred. No. 0.00044;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTTE 13  
|||  
DB 45 CNDGLEGCVPTTE 57

Search completed: January 30, 2004, 12:15:02  
Job time : 12.9917 secs





GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:34:23 ; Search time 5.6 Seconds  
(without alignments)  
223.249 Million cell updates/sec

Title: US-09-266-543-8

Perfect score: 71

Sequence: 1 CNDEGLSEVPTEE 13

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283308 seqs, 96168682 residues

Total number of hits satisfying chosen parameters: 283308

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :  
1: pir1:\*  
2: pir2:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	66	93.0	190	2	S52130
2	66	93.0	232	2	A41551
3	60	84.5	120	2	A33787
4	60	84.5	133	2	B49530
5	60	84.5	146	2	S57956
6	60	84.5	190	2	B40080
7	55	77.5	190	2	B44881
8	55	77.5	190	2	A35987
9	55	77.5	214	2	A44881
10	47	66.2	128	2	I51295
11	45	63.4	188	2	JC4680
12	45	63.4	207	2	JC4679
13	44	62.0	251	2	T08315
14	43	60.6	368	1	BGHUN
15	43	60.6	464	2	T48339
16	41	57.7	1121	2	JQ1631
17	41	57.7	1736	2	T05174
18	40	56.3	173	2	S20003
19	40	56.3	250	2	E87921
20	40	56.3	360	2	S06280
21	40	56.3	369	2	S20811
22	40	56.3	369	2	S32559
23	40	56.3	369	2	S32793
24	40	56.3	606	2	T31557
25	40	56.3	645	2	S51880
26	40	56.3	1006	2	T41104
27	39	54.9	149	2	A41236
28	39	54.9	340	2	T30121
29	39	54.9	354	2	S29145

30	39	54.9	357	2	S24317	decorin precursor
31	39	54.9	437	2	AF3597	fe-s oxidoreductas
32	39	54.9	800	2	T25140	hypothetical prote
33	38	53.5	152	1	DABPT3	adenosylmethionine
34	38	53.5	324	2	A89284	hypothetical prote
35	38	53.5	369	2	F86714	conserved hypothet
36	38	53.5	422	2	G75131	malate oxidoreduct
37	38	53.5	549	2	C83677	L-lactate permease
38	38	53.5	725	2	A83266	conserved hypothet
39	38	53.5	772	2	S62481	hypothetical prote
40	38	53.5	1459	2	G86457	unknown protein, 4
41	37	52.1	64	2	B97138	hypothetical prote
42	37	52.1	83	1	BNRT1	brain neuron cytop
43	37	52.1	137	2	F72608	hypothetical prote
44	37	52.1	295	2	T34572	hypothetical prote
45	37	52.1	315	2	A11413	peptidoglycan anch

## ALIGNMENTS

RESULT 1  
S52130  
vascular endothelial growth factor - pig  
C/Species: Sus scrofa domestica (domestic pig)  
C/Date: 14-Jul-1995 #sequence\_revision 21-Jul-1995 #text\_change 05-Nov-1999  
C/Accession: S52130  
R/Sharma, H.S.; Tang, Z.H.; Gho, B.C.G.; Verdouw, P.D.  
Biochim. Biophys. Acta 1260, 235-238, 1995  
A/Title: Nucleotide sequence and expression of the porcine vascular endothelial growth f  
A/Reference number: S52130; MUID:95143284; PMID:7841203  
A/Accession: S52130  
A/Status: preliminary  
A/Molecule type: mRNA  
A/Residues: 1-190 <SHA>  
A/Cross-references: GB:X81380; NID:G587559; PIDN:CAA57143.1; PID:G587560

Query Match  
Beet Local Similarity 93.0% Score 66; DB 2; Length 190;  
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTEE 13  
DB 86 CNDEGLSEVPTEE 98

RESULT 2  
A41551  
vascular endothelial growth factor 206 precursor - human  
N/Alternate names: vascular permeability factor  
M/Content: Homo sapiens (man)  
C/Species: Homo sapiens (man)  
C/Date: 28-Aug-1992 #sequence\_revision 28-Aug-1992 #text\_change 05-Nov-1999  
C/Accession: A41551; B41551; A40454; B40454; A40079; A40080; JQ1463; JQ1  
R/Houck, K.A.; Ferrara, N.; Winer, J.; Cachianes, G.; Li, B.; Leung, D.W.  
Mol. Endocrinol. 5, 1806-1814, 1991  
A/Title: The vascular endothelial growth factor family: identification of a fourth molec  
A/Reference number: A41551; MUID:92168017; PMID:1791831  
A/Accession: A41551  
A/Molecule type: mRNA  
A/Residues: 1-232 <HOU1>  
A/Cross-references: GB:S85192; NID:G246155; PID:G246156  
A/Accession: C41551  
A/Status: nucleic acid sequence not shown  
A/Molecule type: mRNA  
A/Residues: 1-140, 'N', 183-232 <HOU2>  
A/Accession: B41551  
A/Status: nucleic acid sequence not shown; not compared with conceptual translation  
A/Molecule type: mRNA  
A/Residues: 1-141, 227-232 <HOU>  
R/Tischer, E.; Mitchell, R.; Hartman, T.; Silva, M.; Gospodarowicz, D.; Fidgee, J.C.; Ab  
J. Biol. Chem. 266, 11947-11954, 1991  
A/Title: The human gene for vascular endothelial growth factor. Multiple protein forms a

A:Reference number: A40454; MUID:91268072; PMID:1711045  
 A:Accession: A40454  
 A:Molecule type: DNA  
 A:Residues: 1-165,183-232 <T11>  
 A:Cross-references: GB:M63971; GB:M63973; GB:M63974; GB:M63975; GB:M63976; GB:M63977  
 A:Accession: B40454  
 A:Molecule type: DNA  
 A:Residues: 1-140, 'N', 183-232 <T12>  
 A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63977; GB:M63978  
 A:Accession: C40454  
 A:Molecule type: DNA  
 A:Residues: 1-141, 227-232 <T13>  
 A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63978  
 R:Keck, P.J.; Hauser, S.D.; Krüti, G.; Sanzo, K.; Warren, T.; Feder, J.; Connolly, D.T.  
 Science 246, 1309-1312, 1989  
 A:Title: Vascular permeability factor, an endothelial cell mitogen related to PDGF.  
 A:Reference number: A40079; MUID:90069609; PMID:2479987  
 A:Accession: A40079  
 A:Molecule type: mRNA  
 A:Status: not compared with conceptual translation  
 A:Residues: 1-165,183-232 <KEC>  
 A:Cross-references: GB:M27281; NID:9340300; PIDN:AAA36807.1; PID:9340301  
 R:Leung, D.W.; Cachianes, G.; Kiang, W.J.; Goeddel, D.V.; Ferrara, N.  
 Science 246, 1306-1309, 1989  
 A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.  
 A:Reference number: A40080; MUID:90069608; PMID:2479986  
 A:Accession: A40080  
 A:Status: not compared with conceptual translation  
 A:Molecule type: mRNA  
 A:Residues: 1-140, 'N', 183-232 <LEU>  
 A:Cross-references: GB:M32977; NID:9181970; PIDN:AAA35789.1; PID:9181971  
 R:Weindel, K.; Marne, D.; Welch, H.A.  
 Biochem. Biophys. Res. Commun. 183, 1167-1174, 1992  
 A:Title: AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial  
 A:Reference number: J01463; MUID:92231879; PMID:1567395  
 A:Accession: J01463  
 A:Molecule type: mRNA  
 A:Residues: 1-140, 'N', 183-232 <WEI>  
 A:Cross-references: EMBL:X62568; NID:937658; PIDN:CAA44447.1; PID:937659  
 A:Experimental source: AIDS-Kaposi's sarcoma cell  
 A:Accession: J01464  
 A:Molecule type: mRNA  
 A:Residues: 1-140, 'N', 227-232 <WE2>  
 A:Experimental source: AIDS-Kaposi's sarcoma cell  
 R:Connolly, D.T.; Olander, J.V.; Hevvelman, D.; Nelson, R.; Monsell, R.; Siegel, N.; Hay  
 J. Biol. Chem. 264, 20017-20024, 1989  
 A:Title: Human vascular permeability factor. Isolation from U937 cells.  
 A:Reference number: A34492; MUID:90062112; PMID:2584205  
 A:Accession: A34492  
 A:Molecule type: protein  
 A:Residues: 27-36,43-49, 'R', 72-76, 'Q', 78-81,59-71 <CON>  
 A:Comment: The most common of several alternatively spliced forms is VEGF 165.  
 C:Genetics:  
 A:Gene: GDB:VEGF  
 A:Cross-references: GDB:132244; OMIM:192240  
 A:Map position: 6p21-6p12  
 C:Function:  
 A:Description: promotes fluid and protein leakage from blood vessels  
 C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; extracellular pro  
 F.1-165,183-232/Product: vascular endothelial growth factor 206 precursor #status predicted <V20  
 F.1-165,183-232/Product: vascular endothelial growth factor 189 precursor #status predic  
 F.1-141,227-232/Product: vascular endothelial growth factor 121 precursor #status predic  
 F.1-26/Domin: signal sequence #status predicted <SIG>  
 F.101/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 93.0%; Score 66; DB 2; Length 232;  
 Best Local Similarity 92.3%; Pred. No. 0.0004;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEE 13  
 |||||  
 Db 87 CNDGLESVPTEE 99

RESULT 3  
 A33787  
 vascular endothelial growth factor (version 1) - bovine  
 C:Species: Bos primigenius taurus (cattle)  
 C:Date: 16-Mar-1990 #sequence\_revision 16-Mar-1990 #text\_change 05-Nov-1999  
 C:Accession: A33787  
 R:Rietcher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Critch  
 Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989  
 A:Title: Vascular endothelial growth factor: a new member of the platelet-derived growth  
 A:Reference number: A33787; MUID:90121225; PMID:2610687  
 A:Accession: A33787  
 A:Molecule type: mRNA  
 A:Status: preliminary  
 A:Residues: 1-120 <T15>  
 A:Cross-references: GB:M33750; NID:9163810; PIDN:AAA30805.1; PID:9163811  
 C:Keywords: alternative splicing

Query Match 84.5%; Score 60; DB 2; Length 120;  
 Best Local Similarity 84.6%; Pred. No. 0.0024;  
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEE 13  
 |||||  
 Db 60 CNDGLESVPTEE 72

RESULT 4  
 B49530  
 vascular endothelial growth factor homolog A2R, 14.7K - Orf virus  
 C:Species: Orf virus  
 C:Date: 07-Apr-1994 #sequence\_revision 18-Nov-1994 #text\_change 08-Oct-1999  
 C:Accession: B49530  
 R:Lytle, D.J.; Frazer, K.M.; Fleming, S.B.; Mercer, A.A.; Robinson, A.J.  
 J. Virol. 68, 84-92, 1994  
 A:Title: Homologs of vascular endothelial growth factor are encoded by the poxvirus orf  
 A:Reference number: A49530; MUID:94076465; PMID:8254780  
 A:Contents: N22  
 A:Accession: B49530  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-133 <LYT>  
 A:Cross-references: GB:567520; NID:9456897; PIDN:AA29220.1; PID:9456899  
 A:Note: sequence inconsistent with nucleotide translation  
 A:Note: sequence extracted from NCBI backbone (NCBI:141420, NCBI:141425)

Query Match 84.5%; Score 60; DB 2; Length 133;  
 Best Local Similarity 84.6%; Pred. No. 0.0026;  
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEE 13  
 |||||  
 Db 71 CNDGLESVPTEE 83

RESULT 5  
 S57956  
 ovine vascular endothelial growth factor - sheep  
 C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
 C:Date: 13-Jan-1996 #sequence\_revision 01-Mar-1996 #text\_change 05-Nov-1999  
 C:Accession: S57956  
 R:Redmer, D.A.; Dai, Y.; Li, J.; Jones, S.C.; Moor, R.M.  
 submitted to the EMBL Data Library, July 1995  
 A:Reference number: S57956  
 A:Accession: S57956  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-146 <RED>  
 A:Cross-references: EMBL:X89506; NID:9899350; PIDN:CAA61677.1; PID:9899351

Query Match 84.5%; Score 60; DB 2; Length 146;  
 Best Local Similarity 84.6%; Pred. No. 0.0029;  
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTEE 13  
 |||||  
 DB 86 CNDESLCEVPTEE 98

RESULT 6  
 B40080  
 vascular endothelial growth factor precursor (version 2) - bovine  
 C:Species: Bos primigenius taurus (cattle)  
 C:Date: 30-Jun-1992 #sequence\_revision 30-Jun-1992 #text\_change 05-Nov-1999  
 C:Accession: B40080; B33787; A33255  
 R:Leung, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.  
 Science 246, 1306-1309, 1989  
 A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.  
 A:Reference number: A40080; MUID:90069608; PMID:2479986  
 A:Accession: B40080  
 A:Molecule type: mRNA  
 A:Residues: 1-190 <LEU>  
 A:Cross-references: GB:M32976; NID:9163006; PIDN:AAA0502.1; PID:9163007  
 R:Tischer, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Crist  
 Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989  
 A:Title: Vascular endothelial growth factor: a new member of the platelet-derived growth  
 A:Reference number: A33787; MUID:90121225; PMID:2610687  
 A:Accession: B33787  
 A:Molecule type: mRNA  
 A:Residues: 27-190 <TIS>  
 A:Cross-references: GB:M31836; NID:9163808; PIDN:AAA30804.1; PID:9163809  
 R:Ferrara, N.; Henzel, W.J.  
 Biochem. Biophys. Res. Commun. 161, 851-858, 1989  
 A:Title: Placental foetal cells secrete a novel heparin-binding growth factor specific  
 A:Reference number: A33255; MUID:89286596; PMID:2735925  
 A:Accession: A33255  
 A:Molecule type: protein  
 A:Residues: 27-31 <PER>  
 C:Keywords: alternative splicing; glycoprotein  
 F:1-26/Domain: signal sequence #status predicted <SIG>  
 F:27-190/Product: vascular endothelial growth factor #status predicted <MAT>  
 F:100/Binding site: carbohydrate (Aen) (covalent) #status predicted

Query Match 84.5%; Score 60; DB 2; Length 190;  
 Best Local Similarity 84.6%; Pred. No. 0.0038;  
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTEE 13  
 |||||  
 DB 86 CNDESLCEVPTEE 98

RESULT 7  
 B44881  
 vascular endothelial growth factor-1 precursor - mouse  
 C:Species: Mus musculus (house mouse)  
 C:Date: 03-Feb-1994 #sequence\_revision 03-Feb-1994 #text\_change 05-Nov-1999  
 C:Accession: B44881; A43511; A61029  
 R:Breiter, G.; Albrecht, U.; Sterrer, S.; Risau, W.  
 Development 114, 521-532, 1992  
 A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis  
 A:Reference number: A44881; MUID:92274860; PMID:1592003  
 A:Accession: B44881  
 A:Molecule type: mRNA  
 A:Residues: 1-190 <BR>  
 A:Cross-references: GB:S38083; NID:9249858; PIDN:AA82253.1; PID:9249859  
 A:Experimental source: embryo  
 A>Note: sequence extracted from NCBI backbone (NCBIN:107622, NCBI:P:107623)  
 R:Cliffey, K.P.; Wilkison, W.O.; Spiegelman, B.M.  
 J. Biol. Chem. 267, 16317-16322, 1992  
 A:Title: Vascular endothelial growth factor. Regulation by cell differentiation and acti  
 A:Reference number: A43351; MUID:92355593; PMID:1644816  
 A:Accession: A43351  
 A:Molecule type: mRNA  
 A:Residues: 1-116, ER, 119-190 <CLA>  
 A:Cross-references: GB:M95200; NID:9202350; PIDN:AAA40547.1; PID:9202351

A>Note: sequence extracted from NCBI backbone (NCBIN:110665, NCBI:P:110675)  
 R:Rosenthal, R.A.; Megyesi, J.F.; Henzel, W.J.; Ferrara, N.; Folkman, J.  
 Growth Factors 4, 53-59, 1990  
 A:Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelial g  
 A:Reference number: A61029; MUID:91197543; PMID:2085441  
 A:Accession: A61029  
 A:Molecule type: protein  
 A:Residues: 27-38 <RO>  
 C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein; mit

Query Match 77.5%; Score 55; DB 2; Length 190;  
 Best Local Similarity 76.9%; Pred. No. 0.03;  
 Matches 10; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTEE 13  
 |||||  
 DB 86 CNDEALCEVPTEE 98

RESULT 8  
 A35987  
 glioma-derived vascular endothelial cell growth factor - rat  
 C:Species: Rattus norvegicus (Norway rat)  
 C:Date: 16-Nov-1990 #sequence\_revision 16-Nov-1990 #text\_change 05-Nov-1999  
 C:Accession: A35987  
 R:Com, G.; Bayne, M.L.; Soderman, D.D.; Kwok, P.W.; Sullivan, K.A.; Palis, T.M.; Hope,  
 Proc. Natl. Acad. Sci. U.S.A. 87, 2628-2632, 1990  
 A:Title: Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is ho  
 A:Reference number: A35987; MUID:90207249; PMID:2320579  
 A:Accession: A35987  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-190 <CON>  
 A:Cross-references: GB:M32167; NID:9204287; PIDN:AAA41211.1; PID:9204288

Query Match 77.5%; Score 55; DB 2; Length 190;  
 Best Local Similarity 76.9%; Pred. No. 0.03;  
 Matches 10; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTEE 13  
 |||||  
 DB 86 CNDEALCEVPTEE 98

RESULT 9  
 A44881  
 vascular endothelial growth factor-3 precursor - mouse  
 N:Contains: vascular endothelial growth factor-2; vascular permeability factor  
 C:Species: Mus musculus (house mouse)  
 C:Date: 03-Feb-1994 #sequence\_revision 03-Feb-1994 #text\_change 08-Oct-1999  
 C:Accession: A44881; C44881; A60932; S52136  
 R:Breiter, G.; Albrecht, U.; Sterrer, S.; Risau, W.  
 Development 114, 521-532, 1992  
 A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis  
 A:Reference number: A44881; MUID:92274860; PMID:1592003  
 A:Accession: A44881  
 A:Molecule type: mRNA  
 A:Residues: 1-214 <BR>  
 A:Cross-references: GB:S37052; NID:9249856; PIDN:AA82252.1; PID:9249857  
 A:Experimental source: embryo  
 A>Note: sequence extracted from NCBI backbone (NCBIN:104677, NCBI:P:104678)  
 A:Accession: C44881  
 A:Molecule type: mRNA  
 A:Residues: 1-140, 209-214 <BR>  
 A:Cross-references: GB:S38100; NID:9249860; PIDN:AA82254.1; PID:9249861  
 A>Note: sequence extracted from NCBI backbone (NCBIN:107624, NCBI:P:107625)  
 R:Clausen, M.; Gerlach, M.; Gerlach, H.; Brett, J.; Wang, F.; Familletti, P.C.; Pan, Y.C.  
 J. Exp. Med. 172, 1535-1545, 1990  
 A:Title: Vascular permeability factor: a tumor-derived polypeptide that induces endothe  
 A:Reference number: A60932; MUID:91079755; PMID:2258694  
 A:Accession: A60932  
 A:Molecule type: protein  
 A:Residues: 27-33 <CLA>

R:Subhara, T., Kaul, S.C.; Mitsui, Y.; Madhwa, R.  
 Bioclim. Biophys. Acta 1224, 365-370, 1994  
 A>Title: Enhanced expression of multiple forms of VEGF is associated with spontaneous im  
 A:Reference number: S52136; MUID:95101726; PMID:7803491  
 A:Accession: S52136  
 A>Status: preliminary  
 A:Molecule type: protein  
 A:Rebides: 27-46 <SD>  
 C:Comment: Homodimers could be demonstrated for recombinant VEGF-2 but not VEGF-3.  
 C:Keywords: alternative splicing; angiogenesis; disulfide bond; glycoprotein; homodimerization  
 F:1-26/Domains: signal sequence #status predicted <SIG>  
 F:27-214/Product: vascular endothelial growth factor-3 #status experimental <MAT>  
 Query March 77.5% Score 55; DB 2; Length 214;  
 Best Local Similarity 76.9% Pred. No. 0.034; Indels 0; Gaps 0;  
 Matches 10; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
 QY 1 CNDGLESVPTEE 13  
 |||||  
 |||||  
 db 86 CNDALTECVPTSE 98

```
RESULT 10
151295
vascular endothelial growth factor - quail (fragment)
C/Species: Phaeinidae gen. sp. (quali)
C/Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 28-Feb-1997
C/Accession: 151295
R/FIamme, I.; Breier, G.; Risaau, W.
Dev. Biol. 169, 699-712, 1995
A>Title: Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (Flk-1) are expressed by vascular endothelial cells in the developing chick embryo
A/Reference number: 151295; MUID:95301109; PMID:1781909
A/Accession: 151295
A/Status: preliminary; translated from GB/EMBL/DBJ
A/Molecule type: DNA
A/Residues: 1-128 <FLA>
A/Cross-references: GB:S78343; NID:g999147; PID:g999148
C/Genetics:
A/Gene: VEGF

Query Match      66.2%   Score 47;   DB 2;   Length 128;
Best Local Similarity    66.7%;   Pred. No. 0.53;
Matches          8; Conservative    1; Mismatches    3; Indels    0; Gaps    0;
```

RESULT 11  
JC4680  
vascular endothelial growth factor-related factor 167 precursor - mouse  
N:Alternate names: VRF 167 protein  
C:Species: Mus musculus (house mouse)  
C:Date: 10-May-1996 #sequence\_revision 19-Jul-1996 #text\_change 05-Nov-1999  
C:Accession: JC4680  
R:Tomson, S.; Lacerantz, J.; Grimmond, S.; Sillis, G.; Nordenskiöld, M.; Weber, G.;  
Biochem. Biophys. Res. Commun. 220, 922-928, 1996  
A:Title: Characterization of the murine VEGF-related factor gene.  
A:Reference number: JC4679; MUID:96183052; PMID:8607868  
A:Accession: JC4680  
A:Molecule type: mRNA  
A:Residues: 1-188 <GB>  
A:Cross-references: GB:U3837; NID:G114335; PIDN:AAC5253.1; PID:G114336  
C:Comment: This factor is a mitogen, that is selective for endothelial cells, and belongs  
ar endothelial growth factors 167 and VEGF 186.  
C:Genetics:  
A:Gene: vrf  
A:Map position: 19  
A:Introns: 137/2  
F:1-21/Domain: signal sequence #status predicted <SIG>  
F:22-186/Product: vascular endothelial growth factor-related factor #status predicted <K>

		63.4%;	Score 45;	DB 2;	Length 188;
Query Match			Pred. No. 1.8;		
Best Local Similarity		72.7%;			
Matches	8;	Conservative	1;	Mismatches	2;
				Indels	0;
				Gaps	0.
Ox	1	CNDEGLRSVPT	11		
	:				
Db	82	CPDDELCSVPT	92		

RESULT 12  
JC4679  
vascular endothelial growth factor-related factor 186 precursor - mouse  
C:Species: Mus musculus (house mouse)  
C:Date: 10-May-1996 #sequence\_revision 19-Jul-1996 #ext\_change 05-Nov-1999  
C:Accession: JC4679  
R:Tomson, S.; Lagercrantz, J.; Grimmond, S.; Silins, G.; Nordenskjoeld, M.; Weber, G.;  
Biochem. Biophys. Res. Commun. 220, 922-928, 1996  
A:Title: Characterization of the murine VEGF-related factor gene.  
A:Reference number: JC4679; MUID:96183052; PMID:8607668  
A:Accession: JC4679  
A:Molecule type: mRNA  
A:Residues: 1-207 <TOW>  
A:Cross-references: GB:Q43836; NID:q1703480; PIDs:AAQ52932.1; PID:G1314334  
C:Comment: This factor is a mitogen, that is selective for endothelial cells, and belong  
lar endothelial growth factors 167 and 186.  
C:Genetics:  
A:Gene: vrf  
A:Map position: 19  
C:Keywords: growth factor  
F:1-21/Domin: signal sequence #status predicted <SIG>  
F:122-207/Product: vascular endothelial growth factor related factor #status predicted <M

	Query Match	Best Local Similarity	Mismatches	Gaps
Oy	63.4%; Score 45; DB 2;	72.7%; Pred. No. 2;	Indels 0;	0;
	Conservative 8;	Mismatches 2;		
Ob	1 CNDGLESVPT 11			
	:			
	82 CPDGDGVPT 92			

```

RESULT 13
T08315
hypothetical protein H1185 [imported] - Halobacterium sp. (strain NRC-1) plasmid pNRC100
C|Species: Halobacterium sp.
A|Variety: strain NRC-1
C|Date: 11-Jun-1999 #sequence_revision 11-Jun-1999 #ext_change 03-Nov-2000
C|Accession: T08315
R|Ng, W.V.; Clufo, S.A.; Smith, T.M.; Bumgarner, R.E.; Baeklin, D.; Faust, J.; Hall, B.; L
Genome Res. 8, 1131-1141, 1998
A|Title: Snapshot of a large dynamic replicon in a halophilic Archaeon: megaplasmid or p
A|Reference number: Z16408; MID:99063795; PMID:9947077
A|Accession: T08315
A|Status: translated from GB/EMBL/DBJ
A|Molecule type: DNA
A|Residues: 1-251 <DMS>
A|Cross-references: EMBL:AF016485; NID:G2822278; PID:G2822376; HALOSP:H1185
C|Experimental source: strain NRC-1
C|Genetics:
A|Gene: HALOSP:H1185
A|Genome: plasmid pNRC100
C|Superfamily: Halobacterium plasmid pNRC100 hypothetical protein H1185

Query Match          62.0%; Score 44; DB 2; Length 251;
Best Local Similarity 70.0%; Pred. No. 3.7;
Matches 7; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

```

	QY	1 CNDGLESLP	10
		:	
	Db	96 CNDTGLDLP	105

## RESULT 14

BGHUN  
 biglycan precursor - human  
 M:Alternate names: cartilage proteoglycan I; dermatan sulfate proteoglycan I (DS-PG1); F  
 C:Species: Homo sapiens (man)  
 C:Date: 21-Apr-1992 #sequence revision 26-May-1995 #text change 28-Jan-2000  
 C:Accession: A40757; 138706; A32458; S14349; S05639; A28457  
 R:Fishier, L.W.; Heegaard, A.M.; Vetter, U.; Vogel, W.; Just, W.; Termline, J.D.; Young, M  
 J. Biol. Chem. 266:14371-14377, 1991  
 A:Title: Human biglycan gene. Putative promoter, intron-exon junctions, and chromosomal  
 A:Reference number: A40757; MUID:91317791; PMID:1860845  
 A:Accession: A40757  
 A:Molecule type: DNA  
 A:Residues: 1-368 <FS1>  
 A:Cross-references: GB:M65151; NID:9179428; GB:M65152; NID:9179429; GB:M65153; NID:91794  
 A>Note: the translated sequence in Genbank entry HUMBGN3, release 113.0, (PIDN:AAA52287;  
 d not the DNA) and 26 residues inserted after residue 80 (apparently from a misread EP1  
 R:Just, W.; Rau, W.; Muller, R.; Geerikens, C.; Vogel, W.  
 Hum. Mol. Genet. 3, 2268, 1994  
 A:Title: Dinucleotide repeat polymorphism at the human biglycan (BGN) locus.  
 A:Reference number: 138706; MUID:95187185; PMID:7881444  
 A:Accession: 138706  
 A>Status: preliminary; translated from GB/EMBL/DBJ  
 A:Residues: 361-368 <US>  
 A:Molecule type: mRNA  
 A:Cross-references: EMBL:U11686; NID:9607862; PIDN:AAC50117.1; PID:9619663  
 R:Fishier, L.W.; Termline, J.D.; Young, M.F.  
 J. Biol. Chem. 264, 4571-4576, 1989  
 A:Title: Deduced protein sequence of bone small proteoglycan I (Biglycan) shows homology  
 A:Reference number: A32458; MUID:89174714; PMID:2647739  
 A:Accession: A32458  
 A:Molecule type: mRNA  
 A:Residues: 1-138, 'NV', 141-162, 'DV', 165-368 <FS2>  
 A:Cross-references: GB:J04593; NID:9184339  
 A>Note: parts of this sequence, including the amino end of the mature protein, were dete  
 A:Note: the translated sequence in Genbank entry HUMMPG1, release 113.0, (PIDN:AAA36009.  
 R:Stoecker, G.; Meyer, H.E.; Wagener, C.; Grelling, H.  
 Biochem. J. 274, 415-420, 1991  
 A:Title: Purification and N-terminal amino acid sequence of a chondroitin sulphate/derma  
 A:Reference number: S14349; MUID:91174749; PMID:1848758  
 A:Accession: S14349  
 A:Molecule type: protein  
 A:Residues: 38-57 <STO>  
 A:Experimental source: aorta  
 R:Roughley, P.J.; White, R.J.  
 Biochem. J. 262, 823-827, 1989  
 A:Title: Dermatan sulphate proteoglycans of human articular cartilage. The properties of  
 A:Reference number: S05639; MUID:90073579; PMID:2590169  
 A:Accession: S05639  
 A:Molecule type: protein  
 A:Residues: 38-41, 'X', 43-46, 'X', 48-57 <ROU>  
 R:Fishier, L.W.; Hawkins, G.R.; Tuross, N.; Termline, J.D.  
 J. Biol. Chem. 262, 9702-9708, 1987  
 A:Title: Purification and partial characterization of small proteoglycans I and II, bone  
 A:Reference number: A32656; MUID:87250639; PMID:3597437  
 A:Accession: A28457  
 A:Molecule type: protein  
 A:Residues: 38-41, 'X', 43-62, 'X', 64-66 <FIS3>  
 A:Experimental source: bone  
 C:Genetics:  
 A:Gene: GDB: BGN  
 A:Cross-references: GDB:119727; OMIM:301870  
 A:Map position: Xq28-Xq28  
 A:Introns: 80/1, 117/3; 189/1; 226/1; 257/2; 303/3  
 C:Superfamily: decorin; leucine-rich alpha-2-glycoprotein repeat homology; proteoglycan  
 C:Keywords: chondroitin sulfate proteoglycan; dermatan sulfate; duplication; extracellular  
 F:1-16/Domain: signal sequence #status predicted <PRO>  
 F:17-37/Domain: propeptide #status predicted <PRO>  
 F:38-368/Product: biglycan #status predicted <MA1>  
 F:57-81/Domain: proteoglycan amino-terminal homology <PAH>  
 F:91-114/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR1>  
 F:115-138/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR2>  
 F:139-159/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR3>

F:160-183/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR4>  
 F:184-207/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR5>  
 F:209-229/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR6>  
 F:230-253/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR7>  
 F:254-277/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR8>  
 F:278-300/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR9>  
 F:301-315/Domain: leucine-rich alpha-2-glycoprotein repeat homology #status atypical <LR  
 F:316-368/Domain: proteoglycan carboxyl-terminal homology <PCH>  
 F:42,47/Binding site: dermatan sulfate (Ser) (covalent) #status experimental  
 F:180,198/Binding site: dermatan sulfate (Ser) (covalent) #status predicted  
 F:270,311/Binding site: carbohydrate (Asn) (covalent) #status predicted

## Query Match

Best Local Similarity 60.6%; Score 43; DB 1; Length 368;  
 Matches 8; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTPE 12  
 ||:|||||  
 DB 76 CSDGLKSPPE 87

## RESULT 15

T48339  
 hypothetical protein F15A17.210 - Arabidopsis thaliana

C:Species: Arabidopsis thaliana (mouse-ear cress)

C:Date: 20-Apr-2000 #sequence revision 20-Apr-2000 #text change 20-Apr-2000

C:Accession: T48339

R:Bevan, M.; Terry, N.; Ardiles, W.; Buysaert, C.; Dasseville, R.; De Clerck, R.; De  
 ewes, H.W.; Rudd, S.; Lemcke, K.; Mayer, K.F.X.

submitted to the Protein Sequence Database, April 2000

A:Reference number: 22491

A:Accession: T48339

A>Status: preliminary

A:Molecule type: DNA

A:Residues: 1-464 <BEV>

A:Cross-references: EMBL:AL163002

A:Experimental source: cultivar Columbia; BAC clone F15A17

C:Genetics:

A:Map position: 5

A:Introns: 24/3; 176/3; 233/1; 385/1; 415/3

A>Note: F15A17.210

## Query Match

Best Local Similarity 57.7%; Score 41; DB 2; Length 464;  
 Matches 8; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 2 NDEGLSEVPTPE 13  
 ||:|||||  
 DB 235 NDDGGEVPEEE 246

Search completed: January 30, 2004, 11:46:17  
 Job time : 5.6 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:27:48 ; Search time 3 seconds

(without alignments)  
203.782 Million cell updates/sec

Title: US-09-266-543-8

Perfect score: 71

Sequence: 1 CNDEGLSVPTSE 13

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 127863 seqs, 47026705 residues

Total number of hits satisfying chosen parameters: 127863

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : SwissProt\_41.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	66	93.0	190	VEGA_PIG	P49151 sus scrofa
2	66	93.0	214	VEGA_CANFA	Q9mrv3 canis fam1
3	66	93.0	232	VEGA_HUMAN	P15692 homo sapien
4	60	84.5	133	VEGA_ORFN2	P15284 orf virus (
5	60	84.5	146	VEGA_SHEEP	P50412 ovis aries
6	60	84.5	164	VEGA_CAVPO	P26617 cavia porce
7	60	84.5	190	VEGA_BOVIN	P15691 bos taurus
8	60	84.5	190	VEGA_HORSE	Q9gxr0 equus cabal
9	55	77.5	214	VEGA_MOUSE	Q00731 mus musculu
10	55	77.5	214	VEGA_MOUSE	P16612 rattus norv
11	50	70.4	190	VEGA_MESAU	Q99881 mesocricetu
12	47	66.2	216	VEGA_CHICK	P52582 gallus gall
13	46	64.8	246	FLR1_HUMAN	Q9nui1 homo sapien
14	45	63.4	207	VEGA_BOVIN	Q9x649 bos taurus
15	45	63.4	207	VEGA_HUMAN	P49766 mus musculu
16	45	63.4	207	VEGA_MOUSE	P21810 homo sapien
17	43	60.6	368	PGS1_HUMAN	Q9bkm1 homo sapien
18	42	59.2	379	ASPR_HUMAN	Q35485 rattus norv
19	40	56.3	135	VEGA_RAT	P49764 mus musculu
20	40	56.3	158	PLGF_MOUSE	Q9gq64 sus scrofa
21	40	56.3	272	PGS1_PIG	P21793 ovis aries
22	40	56.3	360	PGS2_BOVIN	Q9tce2 ovis aries
23	40	56.3	360	PGS2_SHEEP	P21809 bos taurus
24	40	56.3	369	PGS1_BOVIN	Q02678 canis fam1
25	40	56.3	369	PGS1_CANFA	P28653 mus musculu
26	40	56.3	369	PGS1_MOUSE	P47853 rattus norv
27	40	56.3	369	PGS1_RAT	Q46390 ovis aries
28	40	56.3	369	PGS1_SHEEP	O46403 equus cabal
29	40	56.3	372	PGS1_HORSE	O00240 aspergillus
30	40	56.3	515	PDI_ASFOR	Q9nui0 homo sapien
31	40	56.3	649	FLR3_HUMAN	P49763 homo sapien
32	39	54.9	221	PLGF_HUMAN	Q01129 rattus norv
33	39	54.9	354	PGS2_RAT	

## ALIGNMENTS

RESULT 1	ID	VEGA_PIG	STANDARD;	PRT;	190 AA.
AC	P49151	O9GL52			
DT	01-FEB-1996	(Rel. 33, Created)			
DT	01-FEB-1996	(Rel. 33, Last sequence update)			
DT	28-FEB-2003	(Rel. 41, Last annotation update)			
DB	Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).				
GN	VEGF OR VEGFA.				
OS	Sus scrofa (Pig).				
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.				
OX	NCBI_TaxID=9823;				
RN	[1]				
RP	SEQUENCE FROM N.A.				
RC	TISSUE=Heart;				
RX	MEDLINE=95143284; PubMed=7941203;				
RA	Sharma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;				
RT	"Nucleotide sequence and expression of the porcine vascular endothelial growth factor";				
RL	Biochim. Biophys. Acta 1260:235-238(1995).				
RN	[2]				
RP	SEQUENCE FROM N.A.				
RA	Lee T., Canty J.M.;				
RT	"PCR cloning of porcine cardiac vascular endothelial growth factor gene";				
RL	Submitted (NOV-2000) to the EMBL/Genbank/DBJ databases.				
CC	- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (by similarity).				
CC	- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PLGF (by similarity).				
CC	- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (by similarity).				
CC	- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.				
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CC	EMBL; X81380; CAA57143.1; -				
CC	EMBL; AF118502; AAG33064.1; -				
CC	PIR; S52130; S52130.				
CC	PIR; S52130; S52130.				
CC	HSSP; P15692; VEGF.				
CC	InterPro; IPR000072; PD_growth_factor.				
CC	Pfam; PF00341; PDGF; 1.				
CC	ProDom; PD001629; PD_growth_factor; 1.				

Q9d668 coturnix co  
P28675 gallus gall  
P54889 c probale  
P07693 bacterioph  
Q90x42 gallus gall  
Q99p18 mus musculu  
Q09830 schizosacch  
Q9u1q4 homo sapien  
P02683 rattus norv  
Q9x647 bos taurus  
Q62092 mus musculu  
Q8Kc69 chlorobium

```

DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Multigene family.
FT SIGNAL 1 26
FT CHAIN 27 190
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 129
FT DISULFID 85 85
FT CARBOHYD 100 100
FT CONFLICT 102 102
SQ SEQUENCE 190 AA; 22368 MM; 04D408BD7913047F CRC64;

Query Match 93.0%; Score 66; DB 1; Length 190;
Best Local Similarity 92.3%; Pred. No. 8.2e-05;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Cy 1 CNDGLESVPTEE 13
Db 86 CNDGSLCVPTEE 98

RESULT 2
VEGA CANFA STANDARD; PRT; 214 AA.
AC Q9MYV3; Q9XSF3; Q9XSP4; Q9XSF5;
ID -VEGA_CANFA STANDARD; PRT; 214 AA.
AC Q9MYV3; Q9XSF3; Q9XSP4; Q9XSF5;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OX NCBI_TaxID=9615;
[1]
RN SEQUENCE FROM N.A. (ISOFORM VEGF-188).
RX MEDLINE=20125516; PubMed=10661874;
RA Scheidegger P., Weiglhofer W., Suarez S., Kaser-Holz B., Steiner R.,
RA Ballmer-Hofer K., Jausse R.;
RT "Vascular endothelial growth factor (VEGF) and its receptors in tumor-
bearing dogs.";
RL Biol. Chem. 380:1449-1454(1999).
[2]
RN SEQUENCE FROM N.A. (ISOFORMS VEGF-188; VEGF-182 AND VEGF-164).
RC TISSUE=Heart;
RA Jijjing L., Rague R.S.;
RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
endothelial cell growth. It induces endothelial cell
proliferation, promotes cell migration, inhibits apoptosis, and
induces permeabilization of blood vessels. It binds to the
VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
to the extracellular matrix unless released by heparin (By
similarity).
CC -1- ALTERNATIVE PRODUCTS:
Event=Alternative splicing; Named isoforms=3;
Name=VEGF-188;
Name=Q9MYV3-1; Sequence=Displayed;
Name=VEGF-182;
Name=Q9MYV3-2; Sequence=VSP_004617;
Name=VEGF-164;
Name=Q9MYV3-3; Sequence=VSP_004615;
Name=Q9MYV3-3; Sequence=VSP_004616;
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.

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CC or send an email to license@ebi.ac.uk).
CC -----
DR EMBL; AJ133758; CAB82426.1; -
DR EMBL; AF133250; AAD29684.1; -
DR EMBL; AF133249; AAD29683.1; -
DR EMBL; AF133248; AAD29682.1; -
DR HSSP; P15692; 1VGH.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Alternative splicing; Multigene family.
FT SIGNAL 1 26
FT CHAIN 27 214
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CARBOHYD 100 100
FT VARSPLIC 140 140
FT VARSPLIC 141 164
FT VARSPLIC 159 164
FT VARSPLIC 143 143
FT CONFLICT 161 161
FT CONFLICT 161 161
SQ SEQUENCE 214 AA; 25175 MM; 0AC980A158C44827 CRC64;

Query Match 93.0%; Score 66; DB 1; Length 214;
Best Local Similarity 92.3%; Pred. No. 9.3e-05;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Cy 1 CNDGLESVPTEE 13
Db 86 CNDGSLCVPTEE 98

RESULT 3
VEGA HUMAN STANDARD; PRT; 232 AA.
AC P15692; O60720; O75875; Q16889; Q96WWS; Q9H1W8; Q9H1W9; Q9UH58;
AC Q9UJ23;
ID -VEGA_HUMAN STANDARD; PRT; 232 AA.
AC P15692; O60720; O75875; Q16889; Q96WWS; Q9H1W8; Q9H1W9; Q9UH58;
AC Q9UJ23;
DT 01-APR-1990 (Rel. 14, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
[1]
RN SEQUENCE FROM N.A. (ISOFORMS VEGF189 AND VEGF165).
RX MEDLINE=90069608; PubMed=2479986;
RA Leung D.W., Cachianes G., Kiang W.-D., Goeddel D.V., Ferrara N.;
RT "Vascular endothelial growth factor is a secreted angiogenic
mitogen.";
RL Science 246:1306-1309(1999).
[2]
RN SEQUENCE FROM N.A. (ISOFORM VEGF189), AND PARTIAL SEQUENCE.

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RX MEDLINE=90063609; PubMed=2479987;  
 RA Keck P.J., Hauser S.D., Krivli G., Sanzo K., Warren T., Feder J.,  
 RA Connolly D.T.;  
 RT "Vascular permeability factor, an endothelial cell mitogen related to  
 RT PDGF.", 246:1309-1312(1989).  
 RL Science. 246:1309-1312(1989).  
 RN [3]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF189).  
 RA MEDLINE=91268072; PubMed=1711045;  
 RX Tischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D.,  
 RA Fiddes J.C., Abraham J.A.;  
 RT "The human gene for vascular endothelial growth factor. Multiple  
 RT protein forms are encoded through alternative exon splicing.";  
 RL J. Biol. Chem. 266:11947-11954(1991).  
 RN [4]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF206).  
 RA MEDLINE=92168017; PubMed=1791831;  
 RX Houck K.A., Ferrara N., Miner J., Cachianes G., Li B., Leung D.W.,  
 RA "The vascular endothelial growth factor family: identification of a  
 RT fourth molecular species and characterization of alternative splicing  
 RT of RNA.";  
 RL Mol. Endocrinol. 5:1806-1814(1991).  
 RN [5]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RA MEDLINE=92231879; PubMed=1567395;  
 RX Weindel K., Marme D., Weich H.A.;  
 RT "AIDS-associated Kaposi's sarcoma cells in culture express vascular  
 RT endothelial growth factor.";  
 RL Biochem. Biophys. Res. Commun. 183:1167-1174(1992).  
 RN [6]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF145).  
 RA MEDLINE=97207275; PubMed=9054410;  
 RX Poltorak Z., Cohen T., Sivan R., Kandelis Y., Spira G., Vladavsky I.,  
 RA Keshet E., Neufeld G.;  
 RT "VEGF145, a secreted vascular endothelial growth factor isoform that  
 RT binds to extracellular matrix.";  
 RL J. Biol. Chem. 272:7151-7158(1997).  
 RN [7]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF183).  
 RA MEDLINE=9906474; PubMed=9878851;  
 RX Lei J., Jiang A., Pei D.;  
 RT "Identification and characterization of a new splicing variant of  
 RT vascular endothelial growth factor: VEGF183.";  
 RL Biochim. Biophys. Acta 1443:400-406(1998).  
 RN [8]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RA MEDLINE=98119755; PubMed=9450968;  
 RX Claffey K.P., Shih S.-C., Mullen A., Dziemisz S., Cusick J.L.,  
 RA Abrams K.R., Lee S.W., Detmar M.;  
 RT "Identification of a human VPF/VEGF 3' untranslated region mediating  
 RT hypoxia-induced mRNA stability.";  
 RL Mol. Biol. Cell 9:469-481(1998).  
 RN [9]  
 RP SEQUENCE OF 114-209 FROM N.A. (ISOFORM VEGF183).  
 RA MEDLINE=99165303; PubMed=10067980;  
 RX Jingjing U., Xue Y., Agarwal N., Rogue R.S.;  
 RT "Human Muller cells express VEGF183, a novel spliced variant of  
 RT vascular endothelial growth factor.";  
 RL Invest. Ophthalmol. Vis. Sci. 40:752-759(1999).  
 RN [10]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RA MEDLINE=99165303; PubMed=10067980;  
 RX Jingjing U., Xue Y., Agarwal N., Rogue R.S.;  
 RT "Human Muller cells express VEGF183, a novel spliced variant of  
 RT vascular endothelial growth factor.";  
 RL Invest. Ophthalmol. Vis. Sci. 40:752-759(1999).  
 RN [11]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF148).  
 RA MEDLINE=99394945; PubMed=10464055;  
 RX MEDLINE=99394945; PubMed=10464055;

RA Whittle C.J., Gillespie K.M., Harrison R., Mathieson P.W.,  
 RA Harper S.J.;  
 RT "Heterogeneous vascular endothelial growth factor (VEGF) isoform mRNA  
 RT and receptor mRNA expression in human glomeruli, and the  
 RT identification of VEGF148 mRNA, a novel truncated splice variant.";  
 RL Clin. Sci. 97:303-312(1999).  
 RN [12]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF121).  
 RA Sato J.D., Whitney R.G.;  
 RT "Human cDNA for vascular endothelial growth factor isoform VEGF121.";  
 RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.  
 RN [13]  
 RP SEQUENCE FROM N.A.  
 RA Submitted (DEC-2000) to the EMBL/GenBank/DBJ databases.  
 RN [14]  
 RP SEQUENCE OF 23-232 FROM N.A. (VEGF165).  
 RA Rieder M.J., Armet T.Z., Carrington D.P., Chung M.-W., Lee K.L.,  
 RA Poel C.L., Toch E.J., Yi Q., Nickerson D.A.;  
 RL Submitted (OCT-2001) to the EMBL/GenBank/DBJ databases.  
 RN [15]  
 RP PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.  
 RX MEDLINE=90062112; PubMed=2584205;  
 RA Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monsell R.,  
 RA Siegel N., Haymore B.L., Leimgruber R., Feder J.;  
 RT "Human vascular permeability factor. Isolation from U937 cells.";  
 RL J. Biol. Chem. 264:20017-20024(1989).  
 RN [16]  
 RP SEQUENCE OF 27-41.  
 RX MEDLINE=93145946; PubMed=7678805;  
 RA Fiebig B.L., Jaeger B., Schoellmann C., Weindel K., Wiltting J.,  
 RA Koehs G., Marme D., Hug H., Weich H.A.;  
 RT "Synthesis and assembly of functionally active human vascular  
 RT endothelial growth factor homodimers in insect cells.";  
 RL Eur. J. Biochem. 211:19-26(1993).  
 RN [17]  
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.  
 RX MEDLINE=97352774; PubMed=9207067;  
 RA Muller Y.A., Li B., Christinger H.W., Welle J.A., Cunningham B.C.,  
 RA de Vos A.M.;  
 RT "Vascular endothelial growth factor: crystal structure and functional  
 RT mapping of the kinase domain receptor binding site.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).  
 RN [18]  
 RP X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.  
 RX MEDLINE=98035455; PubMed=9351807;  
 RA Muller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;  
 RT "The crystal structure of vascular endothelial growth factor (VEGF)  
 RT refined to 1.93-A resolution: multiple copy flexibility and receptor  
 RT binding.";  
 RL Structure 5:1325-1338(1997).  
 RN [19]  
 RP X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.  
 RX MEDLINE=99119204; PubMed=9922142;  
 RA Wiseman C., Christinger H.W., Cochran A.G., Cunningham B.C.,  
 RA Fairbrother W.J., Keenan C.J., Meng G., de Vos A.M.;  
 RT "Crystal structure of the complex between VEGF and a receptor-blocking  
 RT peptide.";  
 RL Biochemistry 37:17765-17772(1998).  
 RN [20]  
 RP STRUCTURE BY NMR OF 34-135.  
 RX MEDLINE=97477915; PubMed=9336848;  
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,  
 RA Starovasnik M.A.;  
 RT "1H, 13C, and 15N backbone assignment and secondary structure of the  
 RT receptor-binding domain of vascular endothelial growth factor.";  
 RL Protein Sci. 6:2250-2260(1997).  
 RN [21]  
 RP STRUCTURE BY NMR OF 137-215.  
 RX MEDLINE=98298440; PubMed=9634701;  
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,  
 RA Starovasnik M.A.;  
 RT "Solution structure of the heparin-binding domain of vascular

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RT endothelial growth factor."
RL Structure 6:637-648(1998).
RN [22]
RP FUNCTION.
RX MEDLINE=21320570; PubMed=11427521;
RA Murphy J.F., Fitzgerald D.J.;
RT "Vascular endothelial growth factor induces cyclooxygenase-dependent
  proliferation of endothelial cells via the VEGF-2 receptor."
RL FASEB J. 15:1667-1669(2001).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
  endothelial cell growth. It induces endothelial cell
  proliferation, promotes cell migration, inhibits apoptosis, and
  induces permeabilization of blood vessels. It binds to the
  VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
  heparin. Neuropilin-1 binds isoforms VEGF-165 and VEGF-145.
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
  with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: VEGF121 is acidic and freely secreted.
  VEGF165 is more basic, has heparin-binding properties and,
  although a significant proportion remains cell-associated, most is
  freely secreted. VEGF189 is very basic; it is cell-associated
  after secretion and is bound avidly by heparin and the
  extracellular matrix, although it may be released as a soluble
  form by heparin, heparinase or plasmin.
CC -1- ALTERNATIVE PRODUCTS:
  Event=Alternative splicing; Named isoforms=7;
  Comment=Experimental confirmation may be lacking for some
  isoforms;
  Name=VEGF206;
  IsoId=P15692-1; Sequence=Displayed;
  Name=VEGF189;
  IsoId=P15692-2; Sequence=VSP_004622;
  IsoId=P15692-2; Sequence=VSP_004622;

Query Match 93.0%; Score 66; DB 1; Length 233;
Best Local Similarity 92.3%; Pred. No. 0.0001;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTEE 13
Db 87 CNDEGLECPTEE 99

RESULT 4
VEGF ORFN2 STANDARD; PRT; 133 AA.
AC P52584.1
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Vascular endothelial growth factor homolog precursor.
GN A2R.
OS Oryz. virus (strain NZ2) (OV NZ-2).
OC Viruses; dsDNA viruses, no RNA stage; Poxviridae; Chordopoxvirinae;
OC Parapoxvirus.
OX NCBI_TaxID=10259;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=94076465; PubMed=8254780;
RA Lytle D.J., Frazer K.M., Fleming S.B., Mercer A.A., Robinson A.J.;
RT "Homologs of vascular endothelial growth factor are encoded by the
  poxvirus of virus."
RL J. Virol. 68:84-92(1994).
CC -1- FUNCTION: INDUCES ENDOTHELIAL PROLIFERATION.
CC -1- SUBUNIT: Homodimer; disulfide-linked (By similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
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CC EMBL; S67520; AAB29220.2; -.
DR HSSP; P15692; IVP.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS02078; PDGF_2; 1.
KM Mitogen; Growth factor; Glycoprotein; Signal.
FT SIGNAL 1 20
FT CHAIN 21 133
FT DISULFID 36 78
FT DISULFID 67 112
FT DISULFID 71 114
FT DISULFID 61 61
FT DISULFID 70 70
FT CARBOHYD 85 85
SQ SEQUENCE 133 AA; 14715 MW; 917C0F68830C39 CRC64;

Query Match 84.5%; Score 60; DB 1; Length 133;
Best Local Similarity 84.6%; Pred. No. 0.00069;
Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTEE 13
Db 71 CNDEGLECPTEE 83

RESULT 5
VEGA SHEEP STANDARD; PRT; 146 AA.
AC P50412.1
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
  permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RX TISSUE=Kidney;
RX MEDLINE=97117958; PubMed=8958842;
RA Redmer D.A., Dai Y., Li J., Charnock-Jones D.S., Smith S.K.,
  Reynolds L.P., Moor R.M.;
RT "Characterization and expression of vascular endothelial growth
  factor (VEGF) in the ovine corpus luteum."
RL J. Reprod. Fert. 108:157-165(1996).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
  endothelial cell growth. It induces endothelial cell
  proliferation, promotes cell migration, inhibits apoptosis, and
  induces permeabilization of blood vessels. It binds to the
  VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
  heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
  with PlGF (By similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
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  or send an email to license@isb-sib.ch).
CC EMBL; X89506; CAA61677.1; -.

```

DR PIR, S57956; S57956.  
 DR HSP, P15692; 1VP.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF; 1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART: SM00141; PDGF; 1.  
 DR PROSITE: PS00249; PDGF\_1; 1.  
 DR PROSITE: PS0278; PDGF\_2; 1.  
 DR Mitogen: Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KW Heparin-binding; Multigene family  
 FT SIGNAL 1 26 BY SIMILARITY.  
 FT CHAIN 27 146 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 FT DISULFID 51 93 BY SIMILARITY.  
 FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CAROXYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).  
 SQ SEQUENCE 146 AA; 17247 MW; 4E792CB57F91760 CRC64;

Query Match 84.5%; Score 60; DB 1; Length 146;  
 Best Local Similarity 84.6%; Pred. No. 0.00077; Mismatches 2; Indels 0; Gaps 0;  
 Matches 11; Conservative 0;

Oy 1 CNDGLESVPTER 13  
 Db 86 CNDGLESVPTER 98

RESULT 6  
 VEGA\_CAVPO STANDARD; PRT; 164 AA.

AC P26617;  
 DT 01-AUG-1992 (Rel. 23, Created)  
 DT 01-AUG-1992 (Rel. 23, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A (VEGF-A) (Vascular permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Cavia porcellus (Guinea pig).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Hystricognath; Caviidae; Cavia.  
 OX NCBI\_TaxID=10141;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Bile duct;  
 RA Berse B.;  
 RL Submitted (JAN-1992) to the EMBL/GenBank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial cell growth. Induces endothelial proliferation and vascular permeability (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PLGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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 CC -----  
 CC EMBL, M84230; AAA37057.1; -.  
 CC HSP, P15692; 1VGH.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF; 1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART: SM00141; PDGF; 1.  
 DR PROSITE: PS00249; PDGF\_1; 1.

DR PROSITE: PS0278; PDGF\_2; 1.  
 KW Mitogen: Angiogenesis; Growth factor; Glycoprotein.  
 FT DISULFID 25 67 BY SIMILARITY.  
 FT DISULFID 56 101 BY SIMILARITY.  
 FT DISULFID 60 103 BY SIMILARITY.  
 FT DISULFID 50 50 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 59 59 INTERCHAIN (BY SIMILARITY).  
 FT CAROXYD 74 74 N-LINKED (GLCNAC. . .) (POTENTIAL).  
 SQ SEQUENCE 164 AA; 19330 MW; 9EB86A81A9D5DC4A CRC64;

Query Match 84.5%; Score 60; DB 1; Length 164;  
 Best Local Similarity 84.6%; Pred. No. 0.00087; Mismatches 2; Indels 0; Gaps 0;  
 Matches 11; Conservative 0;

Oy 1 CNDGLESVPTER 13  
 Db 60 CNDGLESVPTER 72

RESULT 7

VEGA\_BOVIN STANDARD; PRT; 190 AA.

AC P15691;  
 DT 01-APR-1990 (Rel. 14, Created)  
 DT 01-APR-1990 (Rel. 14, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Bos taurus (Bovine).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; OX Bovidae; Bovinae; Bos.  
 RN NCBI\_TaxID=9913;  
 RP [1]  
 RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-47.  
 RX MEDLINE=90069608; PubMed=2479986;  
 RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;  
 RT "Vascular endothelial growth factor is a secreted angiogenic mitogen.";  
 RL Science 246:1306-1309 (1989).  
 RN [2]  
 RP SEQUENCE OF 27-190 FROM N.A. (ISOFORMS ALPHA AND BETA).  
 RX MEDLINE=90121225; PubMed=2610687;  
 RA Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J., Lau K., Crisp T., Fiddes J.C., Abraham J.A.;  
 RT "Vascular endothelial growth factor: a new member of the platelet-derived growth factor gene family.";  
 RL Biochem. Biophys. Res. Commun. 165:1198-1206 (1989).  
 RN [3]  
 RP SEQUENCE OF 27-31.  
 RX MEDLINE=89286596; PubMed=2735925;  
 RA Ferrara N., Henzel W.J.;  
 RT "Placental growth factor cells secrete a novel heparin-binding growth factor specific for vascular endothelial cells.";  
 RL Biochem. Biophys. Res. Commun. 161:851-858 (1989).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PLGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event-Alternative splicing; Named isoforms=2;  
 CC Name=Alpha;  
 CC IsoId=P15691-1; Sequence=Displayed;  
 CC Name=Beta;  
 CC IsoId=P15691-2; Sequence=VSP\_004613, VSP\_004614;

CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 CC EMBL; M32976; AAA30502.1; -  
 CC EMBL; M31836; AAA30804.1; -  
 CC EMBL; M33750; AAA30805.1; -  
 CC PIR; B40080; B40080.  
 CC HSSP; P15692; 1VGH.  
 CC InterPro: IPR000072; PD\_growth\_factor.  
 CC Pfam; PF00341; PDGF; 1.  
 CC ProDom; PD001629; PD\_growth\_factor; 1.  
 CC SMART; SM00141; PDGF; 1.  
 CC PROSITE; PS00249; PDGF\_1; 1.  
 CC PROSITE; PS50278; PDGF\_2; 1.  
 CC Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 CC Heparin-binding; Alternative splicing; Multigene family.  
 CC SIGNAL  
 CC CHAIN 1 26  
 CC FT DISULFID 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 CC FT DISULFID 51 93 BY SIMILARITY.  
 CC FT DISULFID 82 127 BY SIMILARITY.  
 CC FT DISULFID 86 129 BY SIMILARITY.  
 CC FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 CC FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 CC FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).  
 CC FT VARSPLIC 139 183 Missing (in isoform Beta).  
 CC FT VARSPLIC 184 184 /FTId=VSP\_004613.  
 CC FT VARSPLIC 184 184 R -> K (in isoform Beta).  
 CC FT SEQUENCE 190 AA; 22310 MW; EDBF903E46E24789 CRC64;  
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 CC Query Match 84.5%; Score 60; DB 1; Length 190;  
 CC Best Local Similarity 84.6%; Pred. No. 0.001;  
 CC Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;  
 CC  
 CC 1 CNDEGLSVPTTE 13  
 CC DB 86 CNDESLCVPTEE 98  
 CC  
 CC RESULT 8  
 CC VEGA\_HORSE STANDARD; PRT; 190 AA.  
 CC ID VEGA\_HORSE  
 CC AC Q9GKR0;  
 CC DT 28-FEB-2003 (Rel. 41, Created)  
 CC DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 CC DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 CC DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 CC permeability factor) (VPF).  
 CC GN VEGF OR VEGFA.  
 CC OS Equus caballus (Horse).  
 CC OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC OC Mammalia; Eutheria; Perissodactyla; Equidae; Equus.  
 CC OX NCB1\_TaxID=9796;  
 CC RN [1]  
 CC RP SEQUENCE FROM N.A.  
 CC RA Miura N., Miura K., Kawahara K., Nakashima M., Fukumitsu S.,  
 CC Kawabata H., Uto N., Oka T., Maruyama I., Sakamoto H.,  
 CC "Cloning of cDNA and high-level expression of equine vascular  
 CC endothelial growth factor (VEGF)."  
 CC RL Submitted (JUN-2001) to the EMBL/Genbank/DBJ databases.  
 CC CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial  
 CC cell growth. Induces endothelial proliferation and vascular  
 CC permeability (By similarity).  
 CC CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PLGF (By similarity).  
 CC CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or

CC to the extracellular matrix unless released by heparin (By  
 CC similarity).  
 CC -----  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 CC EMBL; AB053350; BAB20890.1; -  
 CC HSSP; P15692; 1VGH.  
 CC InterPro: IPR000072; PD\_growth\_factor.  
 CC Pfam; PF00341; PDGF; 1.  
 CC ProDom; PD001629; PD\_growth\_factor; 1.  
 CC SMART; SM00141; PDGF; 1.  
 CC PROSITE; PS00249; PDGF\_1; 1.  
 CC PROSITE; PS50278; PDGF\_2; 1.  
 CC Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 CC Multigene family.  
 CC SIGNAL  
 CC CHAIN 1 26  
 CC FT DISULFID 27 190 POTENTIAL.  
 CC FT DISULFID 51 93 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 CC FT DISULFID 82 127 BY SIMILARITY.  
 CC FT DISULFID 86 129 BY SIMILARITY.  
 CC FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 CC FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 CC FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).  
 CC FT SEQUENCE 190 AA; 22312 MW; 87E9E161439E5F87 CRC64;  
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 CC Query Match 84.5%; Score 60; DB 1; Length 190;  
 CC Best Local Similarity 84.6%; Pred. No. 0.001;  
 CC Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;  
 CC  
 CC 1 CNDEGLSVPTTE 13  
 CC DB 86 CNDEGLSVPTTE 98  
 CC  
 CC RESULT 9  
 CC VEGA\_MOUSE STANDARD; PRT; 214 AA.  
 CC ID VEGA\_MOUSE  
 CC AC Q00731;  
 CC DT 01-APR-1993 (Rel. 25, Created)  
 CC DT 01-OCT-1996 (Rel. 34, Last sequence update)  
 CC DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 CC DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 CC permeability factor) (VPF).  
 CC GN VEGF OR VEGFA.  
 CC OS Mus musculus (Mouse).  
 CC OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
 CC OX NCB1\_TaxID=10090;  
 CC RN [1]  
 CC RP SEQUENCE FROM N.A. (ISOFORM VEGF-1; VEGF-2 AND VEGF-3).  
 CC RX MEDLINE=92274860; PubMed=1592003;  
 CC RA Breier G., Albrecht U., Steier S., Risau W.,  
 CC "Expression of vascular endothelial growth factor during embryonic  
 CC RT angiogenesis and endothelial cell differentiation."  
 CC RL Development 114:521-532 (1992).  
 CC RN [2]  
 CC RP SEQUENCE FROM N.A. (ISOFORM VEGF-1).  
 CC RX MEDLINE=92355593; PubMed=1644616;  
 CC RA Claffey K.P., Walkison W.O., Spiegelman B.M.,  
 CC "Vascular endothelial growth factor. Regulation by cell  
 CC RT differentiation and activated second messenger pathways."  
 CC RL J. Biol. Chem. 267:16317-16322 (1992).  
 CC RN [3]  
 CC RP SEQUENCE OF 1-3 FROM N.A.  
 CC RX MEDLINE=96216498; PubMed=6632007;  
 CC RA Shima D.T., Kuroki M., Deutsch U., Ng Y., Adams A.P., D'Amore P.A.;

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RT "The mouse gene for vascular endothelial growth factor. Genomic
RT structure, definition of the transcriptional unit, and
RT characterization of transcriptional and post-transcriptional
RT regulatory sequences."
RL J. Biol. Chem. 271:3877-3883(1996).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PLGF (By similarity).
CC -1- SUBCELLULAR LOCATION: VEGF-1 and VEGF-2 are secreted while VEGF-3
CC remains cell-surface associated unless released by heparin.
CC -1- ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=3;
CC Name=VEGF-3; Synonyms=VEGF188;
CC IsoId=000731-1; Sequence=ddisplayed;
CC Name=VEGF-1; Synonyms=VEGF164;
CC IsoId=Q00731-2; Sequence=VSP_004626, VSP_004627;
CC Name=VEGF-2; Synonyms=VEGF120;
CC IsoId=000731-3; Sequence=VSP_004628;
CC -1- TISSUE SPECIFICITY: In developing embryos, expressed mainly in the
CC choroid plexus, paraventricular neuroepithelium, placenta and
CC kidney glomeruli. Also found in bronchial epithelium, adrenal
CC gland and in seminiferous tubules of testis. High expression of
CC VEGF continues in kidney glomeruli and choroid plexus in adults.
CC -1- DOMAIN: VEGF-3 contains a basic insert which acts as a cell
CC retention signal.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; S37052; AAB22252.1; -.
DR EMBL; S38083; AAB22253.1; -.
DR EMBL; S38100; AAB22254.1; -.
DR EMBL; M95200; AAA40547.1; -.
DR EMBL; U41383; -; NOT_ANNOTATED_CDS.
DR PIR; A44881; A44881.
DR PIR; B44881; B44881.
DR HSSP; P15692; 2VBF.
DR MGD; MGI:103178; Vegfa.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SMO0141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
DR Mitogen; Angiogenesis; Growth factor; glycoprotein; signal;
KW Heparin-binding; Alternative splicing; Multigene family.
KM SIGNAL 1 26
FT CHAIN 1 26
FT DISULFID 27 214
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CARBOHYD 100 100
FT VASPLIC 140 140
FT VASPLIC 141 164
FT VASPLIC 141 208
FT VASPLIC 141 208
FT CONFLICT 117 118
FT SEQUENCE 214 AA; 25283 MW; B5540B51E4BBE17 CRC64;
GE -> ER (IN REF. 2).

```

[illegible]

CC Name=VEGF-A120;  
 CC IsoId=PI6612-4; Sequence=VSP 004631;  
 CC -1- TISSUE SPECIFICITY: Expressed in the pituitary, in brain, in  
 CC particularly in supraproctic and paraventricular nuclei and the  
 CC choroid plexus. Also found abundantly in the corpus luteum of the  
 CC ovary and in kidney glomeruli.  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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 CC -----  
 CC DR EMBL; M32167; AAA4121.1; -;  
 CC DR EMBL; AF215725; AAF1921.1; -;  
 CC DR EMBL; AF215726; AAF1921.1; -;  
 CC DR EMBL; AF222779; AAF25958.1; -;  
 CC DR HSSP; P15692; 1VPG;  
 CC DR InterPro; IPR000072; PD\_growth\_factor;  
 CC DR Pfam; PF00341; PDGF; 1;  
 CC DR ProDom; PD001629; PD\_growth\_factor; 1;  
 CC DR SMART; SM00141; PDGF; 1;  
 CC DR PROSITE; PS00249; PDGF\_1; 1;  
 CC DR PROSITE; PS02078; PDGF\_2; 1;  
 CC KM Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 CC Heparin-binding; Alternative splicing; Multigene family.  
 CC FT SIGNAL 1 26  
 CC FT CHAIN 27 214  
 CC FT DISULFID 51 93  
 CC FT DISULFID 82 127  
 CC FT DISULFID 86 129  
 CC FT DISULFID 76 129  
 CC FT DISULFID 85 85  
 CC FT CARBOHYD 100 100  
 CC FT VASAPLIC 140 140  
 CC FT VASAPLIC 141 164  
 CC FT VASAPLIC 141 164  
 CC FT VASAPLIC 141 208  
 CC FT VASAPLIC 141 208  
 CC FT VASAPLIC 165 208  
 CC FT CONFLICT 101 101  
 CC FT SEQUENCE 214 AA; 25239 MW; 60FB876F5304946 CRC64;  
 CC  
 CC Query Match 77.5%; Score 55; DB 1; Length 214;  
 CC Best Local Similarity 76.9%; Pred. No. 0.0098;  
 CC Matches 10; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
 CC  
 CC QY 1 CNDEGLSVPTTE 13  
 CC DB 86 CNDEALCEVPTSE 98  
 CC  
 CC RESULT 11  
 CC VEGA\_MESAU STANDARD; PRT; 190 AA.  
 CC ID VEGA\_MESAU  
 CC AC Q99PS1;  
 CC DT 28-FEB-2003 (Rel. 41, Created)  
 CC DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 CC DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 CC DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 CC permeability factor) (VPF).  
 CC DE VEGF OR VEGFA.  
 CC GN Mesocricetus auratus (Golden hamster).  
 CC OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;  
 CC Mesocricetus.  
 CC OC NCBI\_TaxID=10036;  
 CC OX [1]  
 CC RN

RP SEQUENCE FROM N.A.  
 RC TISSUE=Decidua, and Embryo;  
 RC MEDLINE=99311285; PubMed=10382276;  
 RA Yi X.J., Jiang H.Y., Lee K.K., Tang P.L., Chow P.H.;  
 RT "Expression of vascular endothelial growth factor (VEGF) and its  
 RT receptors during embryonic implantation in the golden hamster  
 RT (Mesocricetus auratus).";  
 RL Cell Tissue Res. 296:339-349 (1999).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or  
 CC to the extracellular matrix unless released by heparin (By  
 CC similarity).  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 CC DR EMBL; AF063013; AAK0049.1; -;  
 CC DR HSSP; P15692; 1VGH.  
 CC DR InterPro; IPR000072; PD\_growth\_factor;  
 CC DR Pfam; PF00341; PDGF; 1;  
 CC DR ProDom; PD001629; PD\_growth\_factor; 1;  
 CC DR SMART; SM00141; PDGF; 1;  
 CC DR PROSITE; PS00249; PDGF\_1; 1;  
 CC DR PROSITE; PS02078; PDGF\_2; 1;  
 CC KM Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 CC Heparin-binding; Multigene family.  
 CC FT SIGNAL 1 26  
 CC FT CHAIN 27 190  
 CC FT DISULFID 51 93  
 CC FT DISULFID 82 127  
 CC FT DISULFID 86 129  
 CC FT DISULFID 76 76  
 CC FT DISULFID 85 85  
 CC FT CARBOHYD 100 100  
 CC FT VASAPLIC 190 AA; 22276 MW; F00CSA8EA79A465F CRC64;  
 CC  
 CC Query Match 70.4%; Score 50; DB 1; Length 190;  
 CC Best Local Similarity 69.2%; Pred. No. 0.071;  
 CC Matches 9; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
 CC  
 CC QY 1 CNDEGLSVPTTE 13  
 CC DB 86 CSDEALCEVPTSE 98  
 CC  
 CC RESULT 12  
 CC VEGA\_CHICK STANDARD; PRT; 216 AA.  
 CC ID VEGA\_CHICK  
 CC AC P52582; G91420;  
 CC DT 01-OCT-1996 (Rel. 34, Created)  
 CC DT 15-JUL-1998 (Rel. 36, Last sequence update)  
 CC DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 CC DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 CC permeability factor) (VPF).  
 CC DE VEGF OR VEGFA.  
 CC GN Gallus gallus (Chicken), and  
 CC OS Gallus gallus (Chicken), and  
 CC Coturnix coturnix japonica (Japanese quail).  
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Archosauria; Aves; Neognathae; Galliformes; Phasianidae;  
 CC Gallus.  
 CC OC

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XN NCB1_TaxID=9031, 93934;
RN [1]
RP SEQUENCE FROM N.A.
RC SPECIES=Chicken; TISSUE=Heart;
RA Takahashi T.;
RL Submitted (FEB-1998) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE FROM N.A. (ISOFORMS VEGF-190; VEGF-166 AND VEGF-146).
RC SPECIES=C. japonica; TISSUE=Embryo;
RX Medline=96005007; PubMed=7556923;
RA Flame I., von Rautern M., Drexler H.C., Syed-Ali S., Risau W.;
RT "Overexpression of vascular endothelial growth factor in the avian
RT embryo induces hypervascularization and increased vascular
RT permeability without alterations of embryonic pattern formation.";
RL Dev. Biol. 171:399-414(1995).
RN [3]
RP SEQUENCE OF 60-187 FROM N.A. (ISOFORMS VEGF-190 AND VEGF-166).
RC SPECIES=C. japonica;
RX Medline=95301109; PubMed=7781909;
RA Flame I., Breier G., Risau W.;
RT "Vascular endothelial growth factor (VEGF) and VEGF receptor 2
RT (Flk-1) are expressed during vasculogenesis and vascular
RT differentiation in the quail embryo.";
RL Dev. Biol. 169:699-712(1995).
RN [4]
RP FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
RC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
RN [5]
RP SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
RN [6]
RP ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=3;
CC Comment=Additional isoforms seem to exist;
CC Name=VEGF-190;
CC IsoId=P52582-1; Sequence=Displayed;
CC Name=VEGF-166;
CC IsoId=P52582-2; Sequence=VSP 004633, VSP 004634;
CC Note=Has been shown to exist only in quail so far;
CC Name=VEGF-146;
CC IsoId=P52582-3; Sequence=VSP 004635, VSP 004636;
CC Note=Has been shown to exist only in quail so far;
RN [7]
RP TISSUE SPECIFICITY: Abundantly and equally expressed in heart and
CC liver. In kidney glomeruli, brain and yolk sac, VEGF-166 is 5- to
CC 10-times more abundant than VEGF-190.
RN [8]
RP DEVELOPMENTAL STAGE: VEGF-166 is expressed early at day 1 and is
CC upregulated during gastrulation. Expression of VEGF-190 is detectable
CC only from day 2.
RN [9]
RP DOMAIN: VEGF-190 contains a basic insert which acts as a cell
CC retention signal.
RN [10]
RP SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
RN [11]
RP This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation
CC at the European Bioinformatics Institute. There are no restrictions on
CC use by non-profit institutions as long as its content is in no way
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CC entities requires a license agreement (See http://www.isb-sib.ch/announce
CC or send an email to license@isb-sib.ch).
RN [12]
RP EMBL, AB011078, BAA24925.1, -.
DR HSSP, S79680, AAB3571.1, -.
DR HSSP, P15692, IVGH.
DR InterPro, IPR000072, PD_growth_factor.
DR Pfam, PF00341, PDGF, 1.
DR ProDom, PD001629, PD_growth_factor, 1.
DR SMART, SM00141, PDGF, 1.
DR PROSITE, PS00249, PDGF_1, 1.
DR PROSITE, PS00278, PDGF_2, 1.
RN [13]
RP Mitogen, Angiogenesis, Growth factor, Glycoprotein, Signal;
RN [14]
RP Heparin-binding, Alternative splicing, Multigene family.

```

FT	SIGNAL	1	26	BY SIMILARITY.
FT	CHAIN	27	216	VASCULAR ENDOTHELIAL GROWTH FACTOR A.
FT	DISULFID	52	94	BY SIMILARITY.
FT	DISULFID	83	128	BY SIMILARITY.
FT	DISULFID	87	130	BY SIMILARITY.
FT	DISULFID	77	77	INTERCHAIN (BY SIMILARITY).
FT	DISULFID	86	86	INTERCHAIN (BY SIMILARITY).
FT	CARBOHYD	101	101	N-LINKED (GLCNAC...) (POTENTIAL).
FT	VASAPPLIC	142	142	K -> N (in isoform VEGF-166).
FT	VASAPPLIC	143	166	/FtId=VSP_004633.
FT	VASAPPLIC	166	166	Missing (in isoform VEGF-166).
FT	VASAPPLIC	167	166	/FtId=VSP_004634.
FT	VASAPPLIC	167	210	P -> L (in isoform VEGF-146).
FT	VASAPPLIC	167	210	/FtId=VSP_004635.
FT	VASAPPLIC	167	210	Missing (in isoform VEGF-146).
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FT	VASAPPLIC	167	210	/FtId=VSP_004670.
FT	VASAPPLIC	167	210	/FtId=VSP_004671.
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FT	VASAPPLIC	167	210	/FtId=VSP_004674.
FT	VASAPPLIC	167	210	/FtId=VSP_004675.
FT	VASAPPLIC	167	210	/FtId=VSP_004676.
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FT	VASAPPLIC	167	210	/FtId=VSP_004691.
FT	VASAPPLIC	167	210	/FtId=VSP_004692.
FT	VASAPPLIC	167	210	/FtId=VSP_004693.
FT	VASAPPLIC	167	210	/FtId=VSP_004694.
FT	VASAPPLIC	167	210	/FtId=VSP_004695.
FT	VASAPPLIC	167	210	/FtId=VSP_004696.
FT	VASAPPLIC	167	210	/FtId=VSP_004697.
FT	VASAPPLIC	167	210	/FtId=VSP_004698.
FT	VASAPPLIC	167	210	/FtId=VSP_004699.
FT	VASAPPLIC	167	210	/Ft

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DR InterPro; IPR000483; LRR_Cterm.
DR InterPro; IPR000372; LRR_Nterm.
DR InterPro; IPR003591; LRR_Typ.
DR Pfam; PF00041; fn3; 1.
DR Pfam; PF00560; LRR; 8.
DR Pfam; PF01463; LRRCT; 1.
DR Pfam; PF01462; LRRNT; 1.
DR SMART; SM00060; FN3; 1.
DR SMART; SM00369; LRR_Typ; 1.
DR SMART; SM00082; LRRCT; 1.
DR SMART; SM00013; LRRNT; 1.
DR Cell adhesion; Repeat; Signal; Transmembrane; Leucine-rich repeat;
KW Glycoprotein.
FT CHAIN 1 20
FT SIGNAL 1 20
FT DOMAIN 21 524
FT TRANSMEM 525 545
FT DOMAIN 546 646
FT REPEAT 52 77
FT REPEAT 78 98
FT REPEAT 99 121
FT REPEAT 123 147
FT REPEAT 148 169
FT REPEAT 170 192
FT REPEAT 194 218
FT REPEAT 219 241
FT REPEAT 242 264
FT REPEAT 265 288
FT DOMAIN 407 485
FT CARBOHYD 221 221
FT CARBOHYD 277 277
SQ SEQUENCE 646 AA; 71359 MW; FFBFSDCC3CA13C92 CRC64;

Query Match 64.8%; Score 46; DB 1; Length 646;
Best Local Similarity 58.3%; Pred. No. 1.5;
Matches 7; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

OY 1 CNDGLESVPT 12
DB 39 CNDRGITIPAD 50

RESULT 14
VEGB_BOVIN STANDARD; PRT; 207 AA.
AC Q9X549; Q9GXL2; Q9X548;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor B precursor (VEGF-B) (VEGF related
DE factor) (VRF).
GN VEGFB OR VRF.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Heart;
RA Liu X., Yonekura H., Yamagishi S., Yamamoto Y., Yamamoto H.;
RT "Structure and expression of bovine VEGF family.";
RL Submitted (MAY-1997) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE OF 38-104 FROM N.A.
RC TISSUE=Heart;
RA Mandriota S.J., Pepper M.S.;
RL Submitted (OCT-1998) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: Growth factor for endothelial cells. VEGF-B167 binds
CC heparin and neuropilin-1 whereas the binding to neuropilin-1 of
CC VEGF-B186 is regulated by proteolysis (by similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Can also form heterodimer

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CC with vegf (by similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (by
CC similarity).
CC -1- ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=2;
CC Comment=Additional isoforms seem to exist;
CC Name=VEGF-B186;
CC IsoId=Q9X549-1; Sequence=Displayed;
CC Name=VEGF-B167;
CC IsoId=Q9X549-2; Sequence=VSP_004637, VSP_004638;
CC -1- PTM: VEGF-B186 is O-glycosylated (by similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC -----
DR EMBL; AB004274; BAA77686.1; -
DR EMBL; AB004273; BAA77685.1; -
DR EMBL; AF099134; AAG29746.1; -
DR HSSP; P15692; 1VFP.
DR InterPro; IPR002400; GF_CysKnot.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR PRINTS; PR00438; GF_CYSKNOT.
DR PRODOM; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS02278; PDGF_2; 1.
DR Mitogen; Growth factor; Glycoprotein; Signal; Heparin-binding;
KW Alternative splicing; Multigene family.
FT SIGNAL 1 21
FT CHAIN 22 207
FT DISULFID 47 89
FT DISULFID 78 122
FT DISULFID 82 124
FT DISULFID 72 72
FT DISULFID 81 81
FT VARSPLIC 137 188
FT FT
FT FT
FT FT
SQ SEQUENCE 207 AA; 21655 MW; 646C82DA1BE17782 CRC64;

Query Match 63.4%; Score 45; DB 1; Length 207;
Best Local Similarity 72.7%; Pred. No. 0.64;
Matches 8; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDGLESVPT 11
DB 82 CPDGLBCVPT 92

RESULT 15
VEGB_HUMAN STANDARD; PRT; 207 AA.
AC P49765; Q16528;
DT 01-OCT-1996 (Rel. 34, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Vascular endothelial growth factor B precursor (VEGF-B) (VEGF related
DE factor) (VRF).
GN VEGFB OR VRF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

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OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.  
 CC NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A. (ISOFORMS VEGF-B186 AND VEGF-B167).  
 RC TISSUE=Fetal brain;  
 RX MEDLINE=97077124; PubMed=8919691;  
 RA Grinnond S., Lagercrantz J., Drinkwater C., Sills G., Thomson S.,  
 RA Pollock P., Gotley D., Carson E., Rakar S., Nordenskiöld M., Ward L.,  
 RA Hayward N.K., Weber G.;  
 RT "Cloning and characterization of a novel human gene related to  
 RT vascular endothelial growth factor.";  
 RL Genome Res. 6:124-131(1996).  
 RN [2]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF-B186).  
 RC TISSUE=Fibroblasts;  
 RX MEDLINE=96325041; PubMed=8702615;  
 RA Olofsson B., Patuola K., von Euler G., Chilov D., Alltalo K.,  
 RA Eriksson U.;  
 RT "Genomic organization of the mouse and human genes for vascular  
 RT endothelial growth factor B (VEGF-B) and characterization of a second  
 RT splice isoform.";  
 RL J. Biol. Chem. 271:19310-19317(1996).  
 RN [3]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF-B167).  
 RX MEDLINE=96197355; PubMed=8637916;  
 RA Olofsson B., Patuola K., Kaipainen A., von Euler G., Jonkov V.,  
 RA Saksela O., Orpana A., Petersson R.F., Alltalo K., Eriksson U.;  
 RT "Vascular endothelial growth factor B, a novel growth factor for  
 RT vascular endothelial cells.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 93:2576-2581(1996).  
 RN [4]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF-B186).  
 RC TISSUE=Tonsil;  
 RX MEDLINE=22388257; PubMed=12477932;  
 RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,  
 RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,  
 RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,  
 RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,  
 RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,  
 RA Brownstein M., Soares M.B., Bonaldi M.F., Casavant T.L., Scheetz T.E.,  
 RA Stempelen M.J., Udell T.B., Toshiyuki S., Carninci P., Prange C.T.,  
 RA Raha S.S., Loggellano N.A., Peters G.J., Abramson R.D., Mullaly S.J.,  
 RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,  
 RA Richards S., Wooley K.C., Hale S., Garcia A.M., Gay L.J., Hilyk S.W.,  
 RA Villalón D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,  
 RA Fahey J., Helton E., Kettman M., Madan A.C., Rodriguez S., Sanchez A.,  
 RA Whiting M., Madan A., Young A.C., Shevchenko V., Bouffard G.G.,  
 RA Blakeley R.W., Touchman J.W., Green E.D., Dickson M.C.,  
 RA Rodriguez A.C., Grinnond J., Schmutz J., Myers R.M.,  
 RA Buttefield J.S.N., Krzyzanski M.I., Skalska U., Smalins D.E.,  
 RA Schmechel A., Schein J.E., Jones S.J.M., Marra M.A.;  
 RT "Generation and initial analysis of more than 15,000 full-length  
 RT human and mouse cDNA sequences.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).  
 CC -1- FUNCTION: Growth factor for endothelial cells. VEGF-B167 binds  
 CC heparin and neuropilin-1 whereas the binding to neuropilin-1 of  
 CC VEGF-B186 is regulated by proteolysis.  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Can also form heterodimer  
 CC with vegf.  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or  
 CC to the extracellular matrix unless released by heparin.  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=2;  
 CC Comment=Additional isoforms seem to exist;  
 CC Name=VEGF-B186;  
 CC IsoId=P49765-1; Sequence=Displayed;  
 CC Name=VEGF-B167;  
 CC IsoId=P49765-2; Sequence=VSP\_004639, VSP\_004640;  
 CC -1- TISSUE SPECIFICITY: Expressed in all tissues except liver. Highest  
 CC levels found in heart, skeletal muscle and pancreas.  
 CC -1- PMW: VEGF-B186 is O-glycosylated (by similarity).  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----

[illegible]

Search completed: January 30, 2004, 11:41:06  
Job time : 3 secs



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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:33:38 ; Search time 13.4667 Seconds  
(without alignments)  
249.110 Million cell updates/sec

Title: US-09-266-543-8  
Perfect score: 71  
Sequence: 1 CNDEGLSVPTEE 13

Scoring table: BLOSUM62  
Gapop 10.0 , Gapept 0.5

Searched: 830525 seqs, 258052604 residues  
Total number of hits satisfying chosen parameters: 830525

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

SPTREMBL\_23:\*  
1: sp\_archaea:\*  
2: sp\_bacteria:\*  
3: sp\_fungi:\*  
4: sp\_human:\*  
5: sp\_invertebrate:\*  
6: sp\_mammal:\*  
7: sp\_mhc:\*  
8: sp\_organelle:\*  
9: sp\_phage:\*  
10: sp\_plant:\*  
11: sp\_protent:\*  
12: sp\_virus:\*  
13: sp\_vertebrate:\*  
14: sp\_unclassified:\*  
15: sp\_virus:\*  
16: sp\_bacteriap:\*  
17: sp\_archaeap:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	66	93.0	124	6 Q9GK00	Q9GK00 callithrix
2	66	93.0	124	6 Q8SP29	Q8SP29 sus scrofa
3	66	93.0	126	6 Q9BDP7	Q9BDP7 macaca mula
4	66	93.0	127	6 Q8WMO4	Q8WMO4 sus scrofa
5	66	93.0	184	6 Q8HY70	Q8HY70 mustela vis
6	66	93.0	189	6 Q9SL04	Q9SL04 felis silve
7	66	93.0	191	4 Q9GK10	Q9GK10 homo sapien
8	66	93.0	191	4 Q9GL82	Q9GL82 homo sapien
9	66	93.0	191	6 Q9SNE5	Q9SNE5 macaca fasc
10	60	84.5	68	6 Q8WMO4	Q8WMO4 capra hircu
11	60	84.5	75	6 Q97500	Q97500 oryctolagus
12	60	84.5	75	6 Q18843	Q18843 oryctolagus
13	60	84.5	78	6 Q9N1S2	Q9N1S2 capreolus c
14	60	84.5	109	6 Q8WMO4	Q8WMO4 capra hircu
15	60	84.5	118	6 Q9WZ81	Q9WZ81 ovis aries
16	60	84.5	123	6 Q9N1S1	Q9N1S1 capreolus c

17	60	84.5	128	6 Q8SP15	Q8SP15 equus caball
18	60	84.5	131	6 Q8WMO4	Q8WMO4 capreolus c
19	60	84.5	132	12 Q9YMF3	Q9YMF3 orf virus
20	60	84.5	190	6 Q77643	Q77643 ovis aries
21	55	77.5	110	11 Q88911	Q88911 rattus norv
22	55	77.5	141	11 Q70123	Q70123 mus musculu
23	55	77.5	144	13 Q73822	Q73822 brachydanio
24	55	77.5	148	13 Q42571	Q42571 xenopus lae
25	55	77.5	188	13 Q73682	Q73682 brachydanio
26	55	77.5	190	11 Q91Z81	Q91Z81 rattus norv
27	55	77.5	190	11 Q9QX39	Q9QX39 spalax leuc
28	55	77.5	194	13 Q42572	Q42572 xenopus lae
29	50	70.4	142	11 Q9ERL6	Q9ERL6 mesocricetu
30	46	64.8	670	10 Q65749	Q65749 cicier ariet
31	46	64.8	674	4 Q8WVA2	Q8WVA2 homo sapien
32	45	63.4	188	4 Q8EYV2	Q8EYV2 homo sapien
33	44	62.0	251	17 Q52002	Q52002 halobacteri
34	43	60.6	325	4 Q8NAB7	Q8NAB7 homo sapien
35	43	60.6	3107	12 P87587	P87587 ciltus tris
36	42	59.2	826	4 Q9NUP4	Q9NUP4 homo sapien
37	42	59.2	826	4 Q96PH7	Q96PH7 homo sapien
38	42	59.2	933	5 Q9BDJ5	Q9BDJ5 strongyloc
39	42	59.2	1624	4 Q9H4C9	Q9H4C9 homo sapien
40	42	59.2	1790	4 Q96PH8	Q96PH8 homo sapien
41	42	59.2	1791	4 Q9BXP8	Q9BXP8 homo sapien
42	42	57.7	263	2 Q85824	Q85824 thermus the
43	41	57.7	264	2 Q9KH06	Q9KH06 thermus aqu
44	41	57.7	266	2 Q9ICZ1	Q9ICZ1 thermus the
45	41	57.7	460	10 Q9FTW9	Q9FTW9 arabidopsis

## ALIGNMENTS

RESULT 1	ID	Q9GK00	PRELIMINARY:	PRT:	124 AA.
AC	Q9GK00	01-MAR-2001 (TREMBLrel. 16, Created)			
DT	01-MAR-2001 (TREMBLrel. 16, Last sequence update)				
DT	01-MAR-2003 (TREMBLrel. 23, Last annotation update)				
DE	Vascular endothelial growth factor (Fragment).				
GN	VEGF.				
OS	Callithrix jacchus (Common marmoset).				
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;				
OC	Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae; Callithrix.				
OX	NCBI_TaxID=9483;				
RN	[1]				
RP	SEQUENCE FROM N.A.				
RC	TISSUE=Oviduct;				
RA	Welter H., Gabler C., Rinspanier R.;				
RT	"growth factor expression in marmoset monkey oviducts.";				
RL	Submitted (MAY-2000) to the EMBL/Genbank/DBJ databases.				
DR	EMBL; AJ278192; CAC19923.1; -				
DR	HSSP; P49763; 1FZV.				
DR	InterPro; IPR000072; PD_growth_factor.				
DR	Pfam; PF00341; PDGF_1.				
DR	ProDom; PD001629; PD_growth_factor; 1.				
DR	SMART; SM00141; PDGF_1.				
DR	PROSITE; PS00249; PDGF_1; 1.				
DR	PROSITE; PS50278; PDGF_2; 1.				
FT	NON_TER				
FT	NON_TER				
SQ	SEQUENCE	124 AA; 14548 MW; AA6F8CAFPCFOA0CC CRC64;			
Query Match		93.0%; Score 66; DB 6; Length 124;			
Best Local Similarity		92.3%; Pred. No. 0.00018;			
Matches	12; Conservative	0; Mismatches 1; Indels	0; Gaps	0;	
Qy	1 CNDEGLSVPTEE 13				
Db	47 CNDEGLSVPTEE 59				

## RESULT 2

Q8SPZ9 PRELIMINARY; PRT; 124 AA.

AC Q8SPZ9; 01-JUN-2002 (TREMBlrel. 21, Created)  
 DT 01-JUN-2002 (TREMBlrel. 21, Last sequence update)  
 DT 01-OCT-2002 (TREMBlrel. 22, Last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 OS Sus scrofa (Pig).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.  
 NCBI\_TaxID=9823;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Myocardium;  
 RA Yuan H., Li J.;  
 RT "The expression of VEGF in porcine collateral-dependent myocardial by  
 exercise training.";  
 RL Submitted (DEC-2001) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF461807; AAL65286.1; -;  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 FT NON TER 124  
 SQ SEQUENCE 124 AA; 14552 MW; 281C1A009E67C9C9 CRC64;

## Query Match

Best Local Similarity 93.0%; Score 66; DB 6; Length 124;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Oy 1 CNDEGLSVPTSE 13  
 Db 58 CNDEGLSVPTSE 70

## RESULT 3

Q9BDP7 PRELIMINARY; PRT; 126 AA.

AC Q9BDP7; 01-JUN-2001 (TREMBlrel. 17, Created)  
 DT 01-JUN-2001 (TREMBlrel. 17, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 OS Macaca mulatta (Rhesus macaque).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
 OC Cercopithecoidea; Macaca.  
 NCBI\_TaxID=9544;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Hazard T.M., Nayak N.R., Jia Y., Stouffer R.L.;  
 RT "Rhesus macaque VEGF mRNA sequence.";  
 RL Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF393737; AAK26379.1; -;  
 DR HSSP; P49763; 1F2V.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 FT NON TER 126  
 SQ SEQUENCE 126 AA; 14599 MW; 1175F2386A83BCF CRC64;

Query Match 93.0%; Score 66; DB 6; Length 126;  
 Best Local Similarity 92.3%; Pred. No. 0.00018;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Oy 1 CNDEGLSVPTSE 13  
 Db 80 CNDEGLSVPTSE 92

## RESULT 4

Q8WMQ4 PRELIMINARY; PRT; 127 AA.

AC Q8WMQ4; 01-MAR-2002 (TREMBlrel. 20, Created)  
 DT 01-MAR-2002 (TREMBlrel. 20, Last sequence update)  
 DT 01-OCT-2002 (TREMBlrel. 22, Last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 OS Sus scrofa (Pig).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.  
 NCBI\_TaxID=9823;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Myocardium;  
 RA Yuan H., Li J.;  
 RT "The expression of VEGF in porcine collateral-dependent myocardial by  
 exercise training.";  
 RL Submitted (JAN-2002) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY072734; AAL68393.1; -;  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 FT NON TER 127  
 SQ SEQUENCE 127 AA; 14920 MW; 5AB63F01A8BC29ED CRC64;

## Query Match

Best Local Similarity 93.0%; Score 66; DB 6; Length 127;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Oy 1 CNDEGLSVPTSE 13  
 Db 44 CNDEGLSVPTSE 56

## RESULT 5

Q8HY70 PRELIMINARY; PRT; 184 AA.

AC Q8HY70; 01-MAR-2003 (TREMBlrel. 23, Created)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor A (Fragment).  
 OS Mustela vison (American mink).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Carnivora; Fissipedia; Mustelidae; Mustelinae;  
 OC Mustela.  
 NCBI\_TaxID=9667;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Lopes F.L., Demarais J.A., Gevery N.Y., Ledoux S., Murphy B.D.;  
 RT "Expression of VEGF isoforms and receptors during implantation in  
 Mustela vison.";  
 RL Submitted (OCT-2002) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY158156; AAN76365.1; -;  
 FT NON TER 184  
 SQ SEQUENCE 184 AA; 21608 MW; BAD47CCB0C146F22 CRC64;

Query Match 93.0%; Score 66; DB 6; Length 184;  
 Best Local Similarity 92.3%; Pred. No. 0.00027;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Oy 1 CNDEGLSVPTSE 13  
 Db 86 CNDEGLSVPTSE 98

## RESULT 6

Q95LQ4 PRELIMINARY; PRT; 189 AA.  
 AC Q95LQ4  
 DT 01-DEC-2001 (TREMBLrel. 19, Created)  
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor.  
 OS Felis silvestris catus (Cat).  
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Carnivora; Fissipedia; Feliidae; Felis.  
 NCBI\_TaxID=9685;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Koga U., Kobayashi Y., Yazawa M., Masuda K., Ohno K., Tsujimoto H.;  
 RT "Nucleotide sequence and expression of the feline vascular endothelial  
 growth factor."  
 RL Submitted (SEP-2001) to the EMBL/Genbank/DBJ databases.  
 DR EMBL; AB071947; BAB68520.1; -;  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 SQ SEQUENCE 189 AA; 22193 MW; C1E4646759A83FD6 CRC64;

Query Match 93.0%; Score 66; DB 6; Length 189;  
 Best Local Similarity 92.3%; Pred. No. 0.00028;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTPE 13  
 Db 86 CNDEGLSVPTPE 98

## RESULT 7

Q96KJ0 PRELIMINARY; PRT; 191 AA.  
 AC Q96KJ0  
 DT 01-DEC-2001 (TREMBLrel. 19, Created)  
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor 165b.  
 OS Homo sapiens (Human).  
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.  
 NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Kidney;  
 RA Sugiono M., Winkler M., Gillatt D., Harper S.J., Bates D.O.;  
 RT "A new isoform of vascular endothelial growth factor mRNA is down-  
 regulated in renal tumors."  
 RL (in) Unknown A. (eds.);  
 RL Proceedings of the 7th World Congress on Microcirculation, pp.3-3,  
 RL Sydney, Australia (2001).  
 DR EMBL; AF430806; AAL27435.1; -;  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 SQ SEQUENCE 191 AA; 22258 MW; D25243B540AC79BD CRC64;

Query Match 93.0%; Score 66; DB 4; Length 191;  
 Best Local Similarity 92.3%; Pred. No. 0.00028;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTPE 13

Db 87 CNDEGLSVPTPE 99

## RESULT 8

Q96L82 PRELIMINARY; PRT; 191 AA.  
 AC Q96L82  
 DT 01-DEC-2001 (TREMBLrel. 19, Created)  
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
 DT 01-DEC-2001 (TREMBLrel. 22, Last annotation update)  
 DE Vascular endothelial growth factor.  
 GN VEGF.  
 OS Homo sapiens (Human).  
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.  
 NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Liu J., Peng X., Yuan J., Qiang B.;  
 RT "Cloning of vascular endothelial growth factor (VEGF) cDNA."  
 RL Submitted (JUL-2001) to the EMBL/Genbank/DBJ databases.  
 DR EMBL; AY047581; AAK95847.1; -;  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 SQ SEQUENCE 191 AA; 22314 MW; CCE57097DD3779BD CRC64;

Query Match 93.0%; Score 66; DB 4; Length 191;  
 Best Local Similarity 92.3%; Pred. No. 0.00028;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDEGLSVPTPE 13  
 Db 87 CNDEGLSVPTPE 99

## RESULT 9

Q95NE5 PRELIMINARY; PRT; 191 AA.  
 AC Q95NE5  
 DT 01-DEC-2001 (TREMBLrel. 19, Created)  
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
 DT 01-OCT-2002 (TREMBLrel. 22, Last annotation update)  
 DE SinVEGF165.  
 GN SINVEGF165.  
 OS Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).  
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheidae;  
 CC Cercopitheidae; Macaca.  
 NCBI\_TaxID=9541;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=96245208; PubMed=8641836;  
 RA Shima D.T., Gougos A., Miller J.W., Tolentino M., Robinson G.,  
 RA Adams A.P., D'Amore P.A.;  
 RT "Cloning and mRNA expression of vascular endothelial growth factor in  
 ischemic retinas of Macaca fascicularis."  
 RL Invest. Ophthalmol. Vis. Sci. 37:1334-1340(1996).  
 DR EMBL; S82167; AAB47118.1; -;  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 SQ SEQUENCE 191 AA; 22314 MW; CCE57097DD3779BD CRC64;

Query Match 93.0%; Score 66; DB 6; Length 191;  
 Best Local Similarity 92.3%; Pred. No. 0.00028;  
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEE 13  
 |||||  
 Db 87 CNDGLESVPTEE 99

## RESULT 10

Q8MINO PRELIMINARY; PRT; 65 AA.  
 AC 08MINO;  
 DT 01-OCT-2002 (TREMBlrel. 22, Created)  
 DT 01-OCT-2002 (TREMBlrel. 22, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor 121 (Fragment).  
 OS Capra hircus (Goat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Caprinae; Capra.  
 OK NCBI\_TaxID=9925;  
 GN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Corpus luteum;  
 RA Kawate N., Tsuji M., Tamada H., Inaba T., Sawada T.;  
 RT "Changes of Messenger RNAs Encoding Vascular Endothelial Growth Factor  
 and Its Receptors during the Development and Maintenance of Caprine  
 Corpora Lutea."  
 RT Submitted (May-2002) to the EMBL/Genbank/DBJ databases.  
 DR EMBL: AY114353; AAM76674.1; -;  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF\_1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART: SM00141; PDGF\_1.  
 DR PROSITE: PS50278; PDGF\_2; 1.  
 DR NON\_TER 1  
 FT 1  
 SQ SEQUENCE 65 AA; 7562 MW; BA3E5384364B0553 CRC64;

Query Match 84.5%; Score 60; DB 6; Length 65;  
 Best Local Similarity 84.6%; Pred. No. 0.0012;  
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEE 13  
 |||||  
 Db 5 CNDGLESVPTEE 17

## RESULT 11

Q97500 PRELIMINARY; PRT; 68 AA.  
 AC 097500;  
 DT 01-MAY-1999 (TREMBlrel. 10, Created)  
 DT 01-MAY-1999 (TREMBlrel. 10, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 GN VEGF.  
 OS Oryctolagus cuniculus (Rabbit).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.  
 OK NCBI\_TaxID=9986;  
 GN [1]  
 RP SEQUENCE FROM N.A.  
 RA Inoue K., Kawabe Y., Kodama T.;  
 RT "Rabbit VEGF cDNA, partial."  
 RT Submitted (Nov-1998) to the EMBL/Genbank/DBJ databases.  
 DR EMBL: AB020216; BAA36949.1; -;  
 DR HSP: P49763; 1FZY.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF\_1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART: SM00141; PDGF\_1.  
 DR PROSITE: PS00249; PDGF\_1; 1.  
 DR PROSITE: PS50278; PDGF\_2; 1.  
 DR NON\_TER 1  
 FT 1  
 SQ SEQUENCE 68 AA; 7819 MW; 687638661E98DE80 CRC64;

Query Match 84.5%; Score 60; DB 6; Length 68;  
 Best Local Similarity 84.6%; Pred. No. 0.0012;  
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEE 13  
 |||||  
 Db 41 CNDGLESVPTEE 53

## RESULT 12

O18843 PRELIMINARY; PRT; 75 AA.  
 AC O18843;  
 DT 01-JAN-1998 (TREMBlrel. 05, Created)  
 DT 01-JAN-1998 (TREMBlrel. 05, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 GN VEGF.  
 OS Oryctolagus cuniculus (Rabbit).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.  
 OK NCBI\_TaxID=9986;  
 GN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=NEW ZEALAND WHITE; TISSUE=Skeletal muscle;  
 RX MEDLINE=98191144; PubMed=9530113;  
 RA Skorjanc D., Jaehnke F., Heine G., Pette D.;  
 RT "Sequential increases in capillarization and mitochondrial enzymes in  
 RT low-frequency-stimulated rabbit muscle."  
 RL Am. J. Physiol. 274:C810-C818(1998).  
 DR EMBL: AF022179; AAC15469.1; -;  
 DR HSP: P49763; 1FZY.  
 DR InterPro: IPR002400; GF\_cysknot.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF\_1.  
 DR PRINTS: PR00438; GFCYSKNOT.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART: SM00141; PDGF\_1.  
 DR PROSITE: PS00249; PDGF\_1; 1.  
 DR PROSITE: PS50278; PDGF\_2; 1.  
 DR NON\_TER 1  
 FT 1  
 SQ SEQUENCE 75 AA; 8720 MW; DDC82C5B29E69359 CRC64;

Query Match 84.5%; Score 60; DB 6; Length 75;  
 Best Local Similarity 84.6%; Pred. No. 0.0014;  
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CNDGLESVPTEE 13  
 |||||  
 Db 29 CNDGLESVPTEE 41

## RESULT 13

O9N1S2 PRELIMINARY; PRT; 78 AA.  
 AC O9N1S2;  
 DT 01-OCT-2000 (TREMBlrel. 15, Created)  
 DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)  
 DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor isoform 121 (Fragment).  
 GN VEGF.  
 OS Capreolus capreolus (Ree deer).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervidae;  
 OC Cervidae; Odocoileinae; Capreolus.  
 OK NCBI\_TaxID=9858;  
 GN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Testis;  
 RX MEDLINE=20532861; PubMed=11078967;  
 RA Wagener A., Blottner S., Goritz F., Fickel J.;

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RT "Detection of growth factors in the testis of roe deer (Capreolus
RT capreolus).";
RL Anim. Reprod. Sci. 64:65-75(2000).
DR EMBL; AF152593; AAF73232.1; -.
DR HSSP; P49763; 1FZV.
DR InterPro; IPR002400; GF_cysknob.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR PRINTS; PR00438; GFCYSKNOT.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
FT NON TER 1
FT NON TER 78
SQ SEQUENCE 78 AA; 9131 MW; 7BE20DDFFC17847C CRC64;

Query Match 84.5%; Score 60; DB 6; Length 78;
Best Local Similarity 84.6%; Pred. No. 0.0014;
Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTTE 13
DB 25 CNDESLCVPTEE 37

RESULT 14
Q8MIN1 PRELIMINARY; PRT; 109 AA.
AC Q8MIN1;
DT 01-OCT-2002 (TRENBLrel. 22, Created)
DT 01-OCT-2002 (TRENBLrel. 22, Last sequence update)
DT 01-OCT-2002 (TRENBLrel. 23, Last annotation update)
DE Vascular endothelial growth factor 165 (Fragment).
OS Capra hircus (Goat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Capra.
OX NCBI_TaxID=9925;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Corpus Luteum;
RA Kawate N., Tsuji M., Yamada H., Inaba T., Sawada T.;
RT "Changes of Messenger RNAs Encoding Vascular Endothelial Growth Factor
RT and Its Receptors during the Development and Maintenance of Caprine
RT Corpora Lutea.";
RL Submitted (MAY-2002) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY114352; AAM76673.1; -.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS50278; PDGF_2; 1.
FT NON TER 1
FT NON TER 1
SQ SEQUENCE 109 AA; 12656 MW; 912657251A37E023 CRC64;

Query Match 84.5%; Score 60; DB 6; Length 109;
Best Local Similarity 84.6%; Pred. No. 0.0021;
Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTTE 13
DB 5 CNDESLCVPTEE 17

RESULT 15
Q9MZB1 PRELIMINARY; PRT; 118 AA.
AC Q9MZB1;
DT 01-OCT-2000 (TRENBLrel. 15, Created)
DT 01-OCT-2000 (TRENBLrel. 15, Last sequence update)
DT 01-OCT-2000 (TRENBLrel. 23, Last annotation update)
DE Vascular endothelial growth factor (Fragment).

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GN VEGF.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Placental artery endothelium;
RA Zheng J., Tsol S.C., Magness R.R.;
RT "Growth factor expression in ovine fetal placental artery endothelial
RT cells.";
RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF250375; AAF75258.1; -.
DR HSSP; P49763; 1FZV.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
FT NON TER 1
FT NON TER 1
SQ SEQUENCE 118 AA; 13931 MW; 757DC53AA56378A6 CRC64;

Query Match 84.5%; Score 60; DB 6; Length 118;
Best Local Similarity 84.6%; Pred. No. 0.0022;
Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTTE 13
DB 58 CNDESLCVPTEE 70

Search completed: January 30, 2004, 11:44:42
Job time : 14.4667 secs

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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:27:08 ; Search time 21.9077 Seconds  
(without alignments)  
115.924 Million cell updates/sec

Title: US-09-266-543-9  
Perfect score: 86  
Sequence: 1 CEESNITWQIMRIKPH 16

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1107863 seqs, 158726573 residues  
Total number of hits satisfying chosen parameters: 1107863

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

- 1: A.GeneSeq\_19Jun03.\*
- 2: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA1980.DAT.\*
- 3: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA1981.DAT.\*
- 4: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA1982.DAT.\*
- 5: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA1983.DAT.\*
- 6: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA1984.DAT.\*
- 7: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA1985.DAT.\*
- 8: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA1986.DAT.\*
- 9: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA1987.DAT.\*
- 10: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA1988.DAT.\*
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- 12: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA1990.DAT.\*
- 13: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA1991.DAT.\*
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- 22: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA2000.DAT.\*
- 23: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA2001.DAT.\*
- 24: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA2002.DAT.\*
- 25: /SIDSI/gcgdata/geneSeq/geneSeq-emb1/AA2003.DAT.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	86	100.0	16	21	AA18550
2	77	89.5	26	21	AA18548
3	77	89.5	36	19	AA43805
4	77	89.5	101	24	AA63230
5	77	89.5	102	22	AAU08484
6	77	89.5	105	21	AA53387
7	77	89.5	105	22	AAU08407
8	77	89.5	105	22	AAU08411
9	77	89.5	105	22	AAU08471

10	77	89.5	105	22	AAU08472
11	77	89.5	110	21	AA569417
12	77	89.5	110	21	AA583038
13	77	89.5	110	22	AA579276
14	77	89.5	110	22	AA580436
15	77	89.5	110	22	AA576304
16	77	89.5	121	12	AA11385
17	77	89.5	121	14	AA42607
18	77	89.5	121	17	AAW09091
19	77	89.5	121	17	AAW03677
20	77	89.5	121	17	AA56043
21	77	89.5	121	17	AA593977
22	77	89.5	121	19	AAW40597
23	77	89.5	121	20	AA523943
24	77	89.5	121	20	AAU08278
25	77	89.5	121	21	AA59848
26	77	89.5	121	22	AA550428
27	77	89.5	121	24	AB584619
28	77	89.5	121	24	AA532329
29	77	89.5	126	22	AAU08403
30	77	89.5	126	22	AAU08409
31	77	89.5	126	22	AAU08413
32	77	89.5	127	22	AAU08405
33	77	89.5	127	22	AAU08423
34	77	89.5	127	22	AAU08425
35	77	89.5	127	22	AAU08427
36	77	89.5	127	22	AAU08429
37	77	89.5	141	24	AB571756
38	77	89.5	145	19	AAW56693
39	77	89.5	145	20	AAU08279
40	77	89.5	145	21	AA569413
41	77	89.5	145	21	AA583034
42	77	89.5	145	22	AA550432
43	77	89.5	145	23	AB576300
44	77	89.5	147	16	AA591075
45	77	89.5	147	17	AA594001

ALIGNMENTS

RESULT 1	AA18550	standard; peptide; 16 AA.
ID	AA18550;	
AC	AA18550;	
DT	15-JAN-2001 (first entry)	
XX	Immunogenic peptide fragment derived from FGF and/or VEGF.	
XX	Immunogenic peptide; fibroblast growth factor; FGF; VEGF; cancer;	
XX	vascular endothelial growth factor; hypertrophic disorder;	
XX	haemangioma; solid tumour; blood borne tumour; leukaemia; metastasis;	
XX	telangiectasia; psoriasis; scleroderma; pyogenic granuloma;	
XX	myocardial angiogenesis; Crohn's disease; plaque neovascularisation;	
XX	arteriovenous malformation; corneal disease; rubecosis;	
XX	neovascular glaucoma; diabetic retinopathy; retrolental fibroplasia;	
XX	arthritis; diabetic neovascularisation; macular degeneration;	
XX	wound healing; peptic ulcer; Helicobacter related disease; fracture;	
XX	keloid; vasculogenesis; hemangiomas; ovulation; menstruation;	
XX	placentation; cat scratch fever.	
OS	Unidentified.	
PN	WO200053219-A2.	
XX	14-SEP-2000.	
PD	10-MAR-2000; 2000WO-US06320.	
XX	PF	
XX	11-MAR-1999; 99US-0266543.	
XX		

PA (ENTR-) ENTREMED INC.  
XX  
PI Holaday JW, Ruiz A, Madsen J;  
XX WPI; 2000-594263/56.  
DR  
XX An immunogenic composition useful for treating cancer or  
PT hyperproliferative disorders comprises an immunogenic peptide fragment  
PT of fibroblast growth factor and/or vascular endothelial growth factor -  
XX  
PS Claim 13; Page 28; 95pp; English.  
XX  
XX AAB18542-51 represent immunogenic peptide fragments of fibroblast  
CC growth factor (FGF) and/or vascular endothelial growth factor (VEGF).  
CC The peptides are used to produce immunogenic compositions. The  
CC immunogenic composition is used for treating cancer or  
CC hyperproliferative disorders, especially haemangioma, solid tumours,  
CC blood borne tumours, leukaemia, metastasis, telangiectasia, psoriasis,  
CC scleroderma, pyogenic granuloma, myocardial angiogenesis, Crohn's  
CC disease, plaque neovascularisation, arteriovenous malformations,  
CC corneal diseases, rubecosis, neovascular glaucoma, diabetic retinopathy,  
CC retrolental fibroplasia, arthritis, diabetic neovascularisation, macular  
CC degeneration, wound healing, peptic ulcer, Helicobacter related  
CC diseases, fractures, keloids, vasculogenesis, hemotopolesis, ovulation,  
CC menstruation, placentaion and cat scratch fever.  
CC  
SQ Sequence 16 AA;  
Query Match 100.0%; Score 86; DB 21; Length 16;  
Best Local Similarity 100.0%; Pred. No. 2.2e-09;  
Matches 16; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
OY 1 CEESNITWQIMRIKPH 16  
DB 1 CEESNITWQIMRIKPH 16  
RESULT 2  
AAB18548  
ID AAB18548 standard; peptide; 26 AA.  
XX  
AC AAB18548;  
XX  
DT 15-JAN-2001 (first entry)  
XX  
DE Immunogenic peptide fragment derived from FGF and/or VEGF.  
XX  
XX Immunogenic peptide; fibroblast growth factor; FGF; VEGF; cancer;  
KW vascular endothelial growth factor; hyperproliferative disorder;  
KW haemangioma; solid tumour; blood borne tumour; leukaemia; metastasis;  
KW telangiectasia; psoriasis; scleroderma; pyogenic granuloma;  
KW myocardial angiogenesis; Crohn's disease; plaque neovascularisation;  
KW arteriovenous malformation; corneal disease; rubecosis;  
KW neovascular glaucoma; diabetic retinopathy; retrolental fibroplasia;  
KW arthritis; diabetic neovascularisation; macular degeneration;  
KW wound healing; peptic ulcer; Helicobacter related disease; fracture;  
KW keloid; vasculogenesis; hemotopolesis; ovulation; menstruation;  
KW placentaion; cat scratch fever.  
XX  
XX Unidentified.  
OS  
XX WO200053219-A2.  
PN  
XX 14-SEP-2000.  
PD  
XX 10-MAR-2000; 2000WO-US06320.  
PF  
XX 11-MAR-1999; 99US-0266543.  
PR  
XX (ENTR-) ENTREMED INC.  
PA  
XX Holaday JW, Ruiz A, Madsen J;  
PI  
XX

DR WPI; 2000-594263/56.  
XX  
XX An immunogenic composition useful for treating cancer or  
PT hyperproliferative disorders comprises an immunogenic peptide fragment  
PT of fibroblast growth factor and/or vascular endothelial growth factor -  
XX  
PS Claim 13; Page 28; 95pp; English.  
XX  
XX AAB18542-51 represent immunogenic peptide fragments of fibroblast  
CC growth factor (FGF) and/or vascular endothelial growth factor (VEGF).  
CC The peptides are used to produce immunogenic compositions. The  
CC immunogenic composition is used for treating cancer or  
CC hyperproliferative disorders, especially haemangioma, solid tumours,  
CC blood borne tumours, leukaemia, metastasis, telangiectasia, psoriasis,  
CC scleroderma, pyogenic granuloma, myocardial angiogenesis, Crohn's  
CC disease, plaque neovascularisation, arteriovenous malformations,  
CC corneal diseases, rubecosis, neovascular glaucoma, diabetic retinopathy,  
CC retrolental fibroplasia, arthritis, diabetic neovascularisation, macular  
CC degeneration, wound healing, peptic ulcer, Helicobacter related  
CC diseases, fractures, keloids, vasculogenesis, hemotopolesis, ovulation,  
CC menstruation, placentaion and cat scratch fever.  
CC  
SQ Sequence 26 AA;  
Query Match 89.5%; Score 77; DB 21; Length 26;  
Best Local Similarity 100.0%; Pred. No. 2e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
OY 2 EESNITWQIMRIKPH 16  
DB 12 EESNITWQIMRIKPH 26  
RESULT 3  
AAW49805  
ID AAW49805 standard; peptide; 36 AA.  
XX  
AC AAW49805;  
XX  
DT 24-SEP-1998 (first entry)  
XX  
DE Amino acid sequence of ligand oligopeptides.  
XX  
XX Ligand oligopeptide; 4-membered complex; gene transfer system;  
KW tumour gene therapy; polycationic polypeptide; cancer;  
KW endosome-release oligopeptide; malignant tumour cell;  
KW tumour vascular endothelialocytes.  
KW  
XX Synthetic.  
OS  
XX WO9818951-A1.  
PN  
XX 07-MAY-1998.  
PD  
XX 27-OCT-1997; 97WO-CN00106.  
PF  
XX 31-OCT-1996; 96CN-0116557.  
PR  
XX (SHAN-) SHANGHAI CANCER INST.  
PA  
XX Gu J, Tian P;  
PI  
XX WPI; 1998-272239/24.  
DR  
XX Novel receptor-mediated gene transfer systems for targeting tumour  
PT gene therapy - by binding to growth factor receptor with their  
PT terminal exogenous DNA component, used to treat e.g. malignant  
PT tumour cells and tumour vascular endothelialocytes, and in gene  
PT therapy  
XX  
XX Claim 5; Page 32; 67pp; Japanese.  
PS  
XX This is the amino acid sequence of ligand oligopeptide used in the

CC method of the invention to create a 4-membered complex gene transfer  
 CC system for targeting tumour gene therapy is formed from a 3-membered  
 CC compound carrier of a ligand oligopeptide/polycationic  
 CC polypeptide/endosome-release oligopeptide complex, and an exogenous  
 CC DNA. The complexes are used for the treatment of cancer in the  
 CC form of malignant tumour cells and tumour vascular endothelialocytes,  
 CC and in gene therapy.

SQ Sequence 36 AA;

Query Match 89.5%; Score 77; DB 19; Length 36;  
 Best Local Similarity 100.0%; Pred. No. 3e-07;  
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNTMQIMRIKPH 16  
 |||||  
 5 EESNTMQIMRIKPH 19

RESULT 4  
 AAE32330  
 ID AAE32330 standard; Protein; 101 AA.

XX AAE32330;  
 XX  
 DT 24-MAR-2003 (first entry)

DE Human VEGF-A receptor binding domain.

KM Vascular endothelial growth factor; VEGF; angiogenesis; wound healing;  
 KM bone growth; osteoporosis; osteoarthritis; bone reconstruction; ulcer;  
 KM lesion; injury; trauma; periodontal condition; protein therapy; human.

OS Homo sapiens.

PN WO200283851-A2.

PD 24-OCT-2002.

PF 10-APR-2002; 2002WO-US11406.

PR 10-APR-2001; 2001US-0832355.

PA (GENV-) GENVEC INC.

PI Kovesdi I, Kessler PD;

DR WPI; 2003-075536/07.

PT New fusion protein comprising a non-heparin-binding vascular  
 PT endothelial growth factor (VEGF) peptide portion and a non-VEGF peptide  
 PT portion, useful for promoting angiogenesis and/or bone growth in  
 PT mammals -

PS Disclosure; Page 118-119; 191pp; English.

CC The invention relates to a fusion protein comprising non-heparin binding  
 CC vascular endothelial growth factor (VEGF) peptide portion and a non-VEGF  
 CC peptide portion useful for promoting angiogenesis and/or bone growth in  
 CC mammalian host. The fusion protein is useful for promoting angiogenesis,  
 CC wound healing and bone growth. Compositions containing bone growth  
 CC promoting fusion protein can be used to treat osteoporosis, rheumatoid  
 CC or osteoarthritis, to improve poor bone healing, to promote implant  
 CC integration and function of artificial joints and to facilitate bone  
 CC reconstruction. They can also be used to treat e.g. ulcers, lesions,  
 CC injuries, burns, trauma, periodontal conditions, lacerations and other  
 CC conditions. The invention is also useful in protein therapy. The present  
 CC sequence is human VEGF-A receptor binding domain.

SQ Sequence 101 AA;

Query Match 89.5%; Score 77; DB 24; Length 101;  
 Best Local Similarity 100.0%; Pred. No. 9.8e-07;

Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 OY 2 EESNTMQIMRIKPH 16  
 |||||  
 64 EESNTMQIMRIKPH 78

RESULT 5  
 AAU08484  
 ID AAU08484 standard; Peptide; 102 AA.

AC AAU08484;

DT 21-NOV-2001 (first entry)

DE VEGFR-1 binding epitope from human VEGF-A.

KM Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;  
 KM angiogenesis; blood vessel; cancer; proliferative retinopathy;  
 KM psoriasis; age-related macular degeneration; rheumatoid arthritis;  
 KM cardiovascular; VEGFR-1.

OS Homo sapiens.

PN WO200162942-A2.

PD 30-AUG-2001.

PF 26-FEB-2001; 2001WO-US06113.

PR 25-FEB-2000; 2000US-0185205.

PR 18-MAY-2000; 2000US-0205331.

PA (LUDW-) LUDWIG INST CANCER RES.

PI Alitalo K, Jeltsch MM;

DR WPI; 2001-536640/59.

PT Polypeptides that bind cellular receptors for vascular endothelial  
 PT growth factors, polynucleotides encoding them -  
 Example 4; Page 115; 261pp; English.

CC The present invention relates to polypeptides that bind cellular  
 CC receptors for vascular endothelial growth factors (VEGFs), the  
 CC polynucleotides encoding them, and their use for identifying agents that  
 CC modulate interactions between VEGFs and their receptors. VEGFs and their  
 CC receptors play an important role in vasculogenesis, the development of  
 CC the embryonic vasculature from early differentiating endothelial cells  
 CC and angiogenesis, the process of forming new blood vessels from  
 CC pre-existing ones. Modulators of interactions between VEGF and its  
 CC receptors may be used to treat dysfunction of the endothelial cell  
 CC regulatory system. Such disorders include cancers, abnormal angiogenesis,  
 CC proliferative retinopathies, age-related macular degeneration, rheumatoid  
 CC arthritis and psoriasis. The polypeptides of the invention exhibit unique  
 CC receptor binding profiles compared to known naturally occurring VEGFs.  
 CC The present sequence represents VEGFR-1 binding epitope from human  
 CC VEGF-A.

SQ Sequence 102 AA;

Query Match 89.5%; Score 77; DB 22; Length 102;  
 Best Local Similarity 100.0%; Pred. No. 9.9e-07;  
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNTMQIMRIKPH 16  
 |||||  
 65 EESNTMQIMRIKPH 79

RESULT 6

AAB53387  
 ID AAB53387 standard; Protein; 105 AA.  
 AC AAB53387;  
 DT 09-MAR-2001 (first entry)  
 DE Human colon cancer antigen protein sequence SEQ ID NO:927.  
 XX  
 KW Human; colon cancer; colon cancer antigen; diagnosis; detection;  
 KW identification; cytostatic; cardioactive; neuroprotective; vulnerary;  
 KW immunomodulatory; muscular; gynaecological; gastrointestinal;  
 KW nephrotoxic; antiinfective; antibacterial; gene therapy; wound;  
 KW neural disorder; immune system disorder; muscular disorder;  
 KW reproductive disorder; gastrointestinal disorder; renal disorder;  
 KW infectious disease; cardiovascular disorder.  
 XX  
 OS Homo sapiens.  
 PN MO20055351-A1.  
 XX  
 PD 21-SEP-2000.  
 XX  
 PF 08-MAR-2000; 2000WO-US05883.  
 XX  
 PR 12-MAR-1999; 99US-0124270.  
 XX  
 PA (HUMA-) HUMAN GENOME SCT INC.  
 XX  
 PI Rosen CA, Ruben SM;  
 XX  
 DR WPI; 2000-587534/55.  
 DR N-PSDB; AAC98144.  
 XX  
 FT Colon cancer associated gene sequences, referred to as colon cancer  
 PT antigens, useful for the treatment, prevention, and diagnosis of colon  
 PT disorders such as colon cancer -  
 XX  
 PS Claim 11; Page 1486; 2104pp; English.  
 XX  
 CC AAC97991 to AAC98763 encode the human colon cancer associated proteins,  
 CC called human colon cancer antigens, given in AAB53234 to AAB54006. The  
 CC human colon cancer antigens can have cytostatic, cardioactive, muscular;  
 CC neuroprotective, immunomodulatory, gynaecological, gastrointestinal,  
 CC vulnerary, nephrotoxic, antiinfective and antibacterial activities, and  
 CC can be used in gene therapy. The colon cancer antigen polynucleotides,  
 CC proteins and antibodies to the proteins are useful for the prevention,  
 CC treatment and diagnosis of colon disorders, such as colon cancer. The  
 CC polynucleotides may be used in diagnostics and research, such as for  
 CC chromosome identification, and as hybridisation probes. The proteins  
 CC may also be used to prevent diseases such as neural disorders, immune  
 CC system disorders, muscular disorders, reproductive disorders,  
 CC gastrointestinal disorders, wounds, renal disorders, infectious  
 CC diseases, and cardiovascular disorders. AAC98764 to AAC98772 and  
 CC AAB54007 represent sequences used in the exemplification of the present  
 CC invention.  
 CC  
 SQ Sequence 105 AA;  
 QY Query Match 89.5%; Score 77; DB 21; Length 105;  
 Best Local Similarity 100.0%; Pred. No. 1e-06;  
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 DB 2 EESNITWQIMRIKPH 16  
 |||||  
 56 EESNITWQIMRIKPH 70  
 |||||  
 RESULT 7  
 ID AAU08407 standard; Protein; 105 AA.  
 AC AAU08407;  
 DT

XX  
 DT 21-NOV-2001 (first entry)  
 XX  
 DE Polypeptide encoded by human VEGF-A/VEGF-C hybrid clone 12-1.  
 XX  
 KW Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;  
 KW angiogenesis; blood vessel; cancer; proliferative retinopathy;  
 KW psoriasis; age-related macular degeneration; rheumatoid arthritis;  
 KW cardiovascular; VEGF-C; mutant; mutein.  
 XX  
 OS Homo sapiens.  
 OS Synthetic.  
 XX  
 FH Key  
 FT Domain  
 FT Location/Qualifiers  
 1..102  
 /note="VEGF receptor binding domain"  
 XX  
 PN MO200162942-A2.  
 XX  
 PD 30-AUG-2001.  
 XX  
 PF 26-FEB-2001; 2001WO-US06113.  
 XX  
 PR 25-FEB-2000; 2000US-0185205.  
 PR 18-MAY-2000; 2000US-0205331.  
 XX  
 PA (LUDM-) LUDWIG INST CANCER RES.  
 PA (LICN) LICENTIA OY.  
 XX  
 PI Altalo K, Jeltsch MM;  
 XX  
 DR WPI; 2001-536640/59.  
 DR N-PSDB; AAS12844.  
 XX  
 FT Polypeptides that bind cellular receptors for vascular endothelial  
 PT growth factors, polynucleotides encoding them -  
 XX  
 PS Claim 35; Page 182; 261pp; English.  
 XX  
 CC The present invention relates to polypeptides that bind cellular  
 CC receptors for vascular endothelial growth factors (VEGFs), the  
 CC polynucleotides encoding them, and their use for identifying agents that  
 CC modulate interactions between VEGFs and their receptors. VEGFs and their  
 CC receptors play an important role in vasculogenesis, the development of  
 CC the embryonic vasculature from early differentiating endothelial cells  
 CC and angiogenesis, the process of forming new blood vessels from  
 CC pre-existing ones. Modulators of interactions between VEGF and its  
 CC receptors may be used to treat dysfunction of the endothelial cell  
 CC regulatory system. Such disorders include cancers, abnormal angiogenesis,  
 CC proliferative retinopathies, age-related macular degeneration, rheumatoid  
 CC arthritis and psoriasis. The polypeptides of the invention exhibit unique  
 CC receptor binding profiles compared to known naturally occurring VEGFs.  
 CC The present sequence represents the polypeptide encoded by human  
 CC VEGF-A/VEGF-C hybrid construct clone 12-1.  
 CC  
 SQ Sequence 105 AA;  
 QY Query Match 89.5%; Score 77; DB 22; Length 105;  
 Best Local Similarity 100.0%; Pred. No. 1e-06;  
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 DB 2 EESNITWQIMRIKPH 16  
 |||||  
 65 EESNITWQIMRIKPH 79  
 |||||  
 RESULT 8  
 ID AAU08411 standard; Protein; 105 AA.  
 AC AAU08411;  
 DT 21-NOV-2001 (first entry).

```

XX XX Polypeptide encoded by human VEGF-A/VEGF-C hybrid clone 12-5.
XX
XX
XX Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;
XX angiogenesis; blood vessel; cancer; proliferative retinopathy;
XX psoriasis; age-related macular degeneration; rheumatoid arthritis;
XX cardiovascular; VEGF-C; mutant; mutein.
XX
XX Homo sapiens.
XX Synthetic.
XX
XX Key Location/Qualifiers
XX FT Domain 1..102
XX /note= "VEGF receptor binding domain"
XX
XX MO200162942-A2.
XX
XX PD 30-AUG-2001.
XX
XX PF 26-FEB-2001; 2001WO-US06113.
XX
XX PR 25-FEB-2000; 2000US-0185205.
XX 18-MAY-2000; 2000US-0205331.
XX
XX (LUDW-) LUDWIG INST CANCER RES.
XX (LICN) LICENTIA OY.
XX
XX PI Alitalo K, Jeltsch MM;
XX
XX WI: 2001-536640/59.
XX DR N-PSDB; AAS12848.
XX
XX PT Polypeptides that bind cellular receptors for vascular endothelial
XX growth factors, polynucleotides encoding them -
XX
XX PS Claim 36; Page 186-187; 261pp; English.
XX
XX CC The present invention relates to polypeptides that bind cellular
XX receptors for vascular endothelial growth factors (VEGFs), the
XX polynucleotides encoding them, and their use for identifying agents that
XX modulate interactions between VEGFs and their receptors. VEGFs and their
XX receptors play an important role in vasculogenesis, the development of
XX the embryonic vasculature from early differentiating endothelial cells
XX and angiogenesis, the process of forming new blood vessels from
XX pre-existing ones. Modulators of interactions between VEGF and its
XX receptors may be used to treat dysfunction of the endothelial cell
XX regulatory system. Such disorders include cancers, abnormal angiogenesis,
XX proliferative retinopathies, age-related macular degeneration, rheumatoid
XX arthritis and psoriasis. The polypeptides of the invention exhibit unique
XX receptor binding profiles compared to known naturally occurring VEGFs.
XX CC The present sequence represents the polypeptide encoded by human
XX VEGF-A/VEGF-C hybrid construct clone 12-5.
XX
XX SQ Sequence 105 AA;
XX
XX Query Match 89.5%; Score 77; DB 22; Length 105;
XX Best Local Similarity 100.0%; Pred. No. 1e-06;
XX Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
XX
XX QY 2 EESNITWQIMRIKPH 16
XX |||||
XX DB 65 EESNITWQIMRIKPH 79
XX
XX RESULT 9
XX AAU08471 standard; Protein; 105 AA.
XX
XX AC AAU08471;
XX
XX DT 21-NOV-2001 (first entry)
XX
XX DE Polypeptide encoded by human VEGF-A/VEGF-C hybrid clone 53-3.

```

```

XX XX Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;
XX angiogenesis; blood vessel; cancer; proliferative retinopathy;
XX psoriasis; age-related macular degeneration; rheumatoid arthritis;
XX cardiovascular; VEGF-C; mutant; mutein.
XX
XX Homo sapiens.
XX Synthetic.
XX
XX MO200162942-A2.
XX
XX PD 30-AUG-2001.
XX
XX PF 26-FEB-2001; 2001WO-US06113.
XX
XX PR 25-FEB-2000; 2000US-0185205.
XX 18-MAY-2000; 2000US-0205331.
XX
XX (LUDW-) LUDWIG INST CANCER RES.
XX (LICN) LICENTIA OY.
XX
XX PI Alitalo K, Jeltsch MM;
XX
XX WI: 2001-536640/59.
XX DR N-PSDB; AAS12890.
XX
XX PT Polypeptides that bind cellular receptors for vascular endothelial
XX growth factors, polynucleotides encoding them -
XX
XX PS Claim 46; Page 253; 261pp; English.
XX
XX CC The present invention relates to polypeptides that bind cellular
XX receptors for vascular endothelial growth factors (VEGFs), the
XX polynucleotides encoding them, and their use for identifying agents that
XX modulate interactions between VEGFs and their receptors. VEGFs and their
XX receptors play an important role in vasculogenesis, the development of
XX the embryonic vasculature from early differentiating endothelial cells
XX and angiogenesis, the process of forming new blood vessels from
XX pre-existing ones. Modulators of interactions between VEGF and its
XX receptors may be used to treat dysfunction of the endothelial cell
XX regulatory system. Such disorders include cancers, abnormal angiogenesis,
XX proliferative retinopathies, age-related macular degeneration, rheumatoid
XX arthritis and psoriasis. The polypeptides of the invention exhibit unique
XX receptor binding profiles compared to known naturally occurring VEGFs.
XX CC The present sequence represents the polypeptide encoded by human
XX VEGF-A/VEGF-C hybrid construct clone 53-3.
XX
XX SQ Sequence 105 AA;
XX
XX Query Match 89.5%; Score 77; DB 22; Length 105;
XX Best Local Similarity 100.0%; Pred. No. 1e-06;
XX Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
XX
XX QY 2 EESNITWQIMRIKPH 16
XX |||||
XX DB 66 EESNITWQIMRIKPH 80
XX
XX RESULT 10
XX AAU08472 standard; Protein; 105 AA.
XX
XX AC AAU08472;
XX
XX DT 21-NOV-2001 (first entry)
XX
XX DE Polypeptide encoded by human VEGF-A/VEGF-C hybrid clone 82-7.
XX
XX AC Human; vascular endothelial growth factor; VEGF-A; vasculogenesis;
XX angiogenesis; blood vessel; cancer; proliferative retinopathy;
XX psoriasis; age-related macular degeneration; rheumatoid arthritis;
XX cardiovascular; VEGF-C; mutant; mutein.
XX

```

OS Homo sapiens.  
 OS Synthetic.  
 XX WO200162942-A2.  
 XX PD 30-AUG-2001.  
 XX PF 26-FEB-2001; 2001WO-US06113.  
 XX PR 25-FEB-2000; 2000US-0185205.  
 XX PR 18-MAY-2000; 2000US-0205331.  
 XX PA (LUDWIG INST CANCER RES.  
 XX (LICENTIA OY.  
 XX PI Alitalo K, Jeltsch MM;  
 XX WPI; 2001-536640/59.  
 XX DR N-PSDB; AAS12891.  
 XX PT Polypeptides that bind cellular receptors for vascular endothelial  
 XX growth factors, polynucleotides encoding them -  
 XX PS Claim 47; Page 254-255; 261pp; English.  
 CC The present invention relates to polypeptides that bind cellular  
 CC receptors for vascular endothelial growth factors (VEGFs), the  
 CC polynucleotides encoding them, and their use for identifying agents that  
 CC modulate interactions between VEGFs and their receptors. VEGFs and their  
 CC receptors play an important role in angiogenesis, the development of  
 CC the embryonic vasculature from early differentiating endothelial cells  
 CC and angiogenesis, the process of forming new blood vessels from  
 CC pre-existing ones. Modulators of interactions between VEGF and its  
 CC receptors may be used to treat dysfunction of the endothelial cell  
 CC regulatory system. Such disorders include cancers, abnormal angiogenesis,  
 CC proliferative retinopathies, age-related macular degeneration, rheumatoid  
 CC arthritis and psoriasis. The polypeptides of the invention exhibit unique  
 CC receptor binding profiles compared to known naturally occurring VEGFs.  
 CC The present sequence represents the polypeptide encoded by human  
 CC VEGF-A/VEGF-C hybrid construct clone 82-7.  
 XX VEGF-A/VEGF-C hybrid construct clone 82-7.  
 XX SQ Sequence 105 AA;  
 SQ Query Match 89.5%; Score 77; DB 22; Length 105;  
 Best Local Similarity 100.0%; Pred. No. 1e-06;  
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITWQIMRIKPH 16  
 |||||  
 Db 65 EESNITWQIMRIKPH 79

RESULT 11  
 AAY69417  
 ID AAY69417 standard; Protein; 110 AA.  
 XX  
 XX AC AAY69417;  
 XX DT 03-JUL-2000 (first entry)  
 XX DE Amino acid sequence of vascular endothelial growth factor 110.  
 XX Human; vascular endothelial growth factor; VEGF 110; angiogenic factor;  
 XX blood vessel injury; vascular injury; microvascular angiopathy;  
 XX thrombotic microangiopathy; kidney disease; haemolytic uremic syndrome;  
 XX toxic shock syndrome; venom; hypercoagulable state; platelet activation;  
 XX platelet aggregation; thrombosis; pre-eclampsia; sepsis; pancreatitis;  
 XX intravascular coagulation; thrombotic thrombocytopenia purpura;  
 XX acute renal failure; myocardial infarction; ischemic bowel disease;  
 XX stroke; hypoxia; hypercapnia; fibrosis; toxic alveolar injury;  
 XX acute respiratory distress syndrome; pneumonia; pulmonary emboli;  
 XX birth prematurity disorder; wound; allergy; hypersensitivity;  
 XX autoimmune disease; organ transplant; focal glomerulosclerosis;

KW amyloidosis.  
 XX Homo sapiens.  
 OS WO200013702-A2.  
 XX PD 16-MAR-2000.  
 XX PF 09-SEP-1999; 99WO-US20480.  
 XX PR 09-SEP-1998; 98US-0099694.  
 XX PR 26-MAR-1999; 99US-0126406.  
 XX PR 27-MAR-1999; 99US-0126615.  
 XX PA (SCIO-) SCIOS INC.  
 XX PI Schreiner GF, Johnson RJ;  
 XX WPI; 2000-256861/22.  
 XX DR Novel methods and compositions for the prevention and treatment of  
 XX PT microvascular angiopathies by administration of angiogenic factors such  
 XX as vascular endothelial growth factor (VEGF) -  
 XX PS Disclosure; Fig 12; 46pp; English.  
 CC The present sequence represents native human vascular endothelial growth  
 CC factor (VEGF) 110. VEGF is an angiogenic factor. VEGF proteins are used  
 CC for the prevention or repair of injury to blood vessels or associated  
 CC nonvascular tissues (served by the blood vessels) and for the prevention  
 CC and repair of vascular injury associated with microvascular angiopathy,  
 CC particularly thrombotic microangiopathy. The proteins methods may also  
 CC be used for the prevention and treatment of kidney diseases associated  
 CC with injury to, or atrophy of, the vasculature of the glomerulus and  
 CC interstitium. Conditions which may be treated include haemolytic uremic  
 CC syndrome, toxic shock syndrome, venom exposure, chemical exposure,  
 CC hypercoagulable states, platelet activation or aggregation, thrombosis,  
 CC pre-eclampsia, thrombotic thrombocytopenia purpura, disseminated  
 CC intravascular coagulation, sepsis, pancreatitis, acute renal failure,  
 CC myocardial infarction, ischemic bowel disease, transient ischemic  
 CC attacks, stroke, hypoxia or hypercapnia or fibrosis arising from lung  
 CC endothelium injury, acute respiratory distress syndrome, toxic alveolar  
 CC injury, pneumonia, pulmonary emboli, birth prematurity disorders,  
 CC wounds, allergic reactions, hypersensitivity, autoimmune diseases, organ  
 CC transplants, focal glomerulosclerosis, and amyloidosis.  
 XX Sequence 110 AA;  
 SQ Query Match 89.5%; Score 77; DB 21; Length 110;  
 Best Local Similarity 100.0%; Pred. No. 1e-06;  
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITWQIMRIKPH 16  
 |||||  
 Db 72 EESNITWQIMRIKPH 86

RESULT 12  
 AAY83038  
 ID AAY83038 standard; Protein; 110 AA.  
 XX  
 XX AC AAY83038;  
 XX DT 04-JUL-2000 (first entry)  
 XX DE Human vascular endothelial growth factor (hVEGF110).  
 XX Vascular endothelial growth factor; human; angiogenesis; VEGF;  
 XX capillary formation; hypertension; treatment; kidney; stroke;  
 XX meningitis; central nervous system; tumour; infection; bone growth;  
 XX hypoxia; hypercapnia; fibrosis; inflammatory bowel disease;  
 XX diarrhoea; allografts; cardiac valve.

OS Homo sapiens.  
 XX WO200013703-A2.  
 XX 16-MAR-2000.  
 XX PF 09-SEP-1999; 99WO-US20481.  
 XX PR 09-SEP-1998; 98US-0099694.  
 XX PR 26-MAR-1999; 99US-0126406.  
 XX PR 27-MAR-1999; 99US-0126615.  
 XX (SCTO-) SCTOS INC.  
 XX Schreiner GF, Johnson RJ;  
 XX WPI, 2000-256862/22.  
 XX Novel methods for treating hypertension by administering a factor which  
 XX increases angiogenesis and/or vascular permeability -  
 XX  
 XX Disclosure: Figure 11, 51pp; English.  
 XX  
 XX Administering vascular endothelial growth factor (VEGF) can be used  
 XX for treating hypertension (especially salt-dependent hypertension)  
 XX Administeration of VEGF promotes angiogenesis and/or vascular or  
 XX capillary permeability. The method is also useful in treating  
 XX disorders related to abnormal transport of solutes across endothelial  
 XX cells. Such disorders include the treatment or prevention of kidney  
 XX disease associated with impaired filtration or excretion of solutes;  
 XX the treatment or prevention of diseases of the central nervous system  
 XX associated with alterations in cerebrospinal fluid, e.g. stroke,  
 XX meningitis, tumour, infections, and bone growth disorders; treatment  
 XX or prevention of hypoxia or hypercapnia or fibrosis arising from  
 XX accumulation of fluid secretions in the lungs, e.g. acute respiratory  
 XX distress syndrome, toxic alveolar injury, pneumonia, infections,  
 XX surgical intervention, cystic fibrosis; treatment or prevention of  
 XX pulmonary dysfunction arising from injury to the pulmonary  
 XX endothelium, including disorders arising from premature birth, and  
 XX pulmonary hypertension; treatment or prevention of disease arising  
 XX from disordered transport of fluid and solutes across the intestinal  
 XX epithelium, e.g. inflammatory bowel disease, diarrhoea; treatment or  
 XX prevention of ascites accumulation in the peritoneum; enhancement of  
 XX efficacy of solute flux; preservation or enhancement of function of  
 XX organ allografts; and treatment of cardiac valve disease. This  
 XX sequence is the native human vascular endothelial growth  
 XX factor hVEGF110. The activity of VEGF is mediated by interaction  
 XX with specific receptors on target tissues, most notably the vascular  
 XX endothelium. VEGF exists as five different length monomer chains due  
 XX to alternative splicing of the VEGF RNA transcript.  
 XX  
 XX Sequence 110 AA;  
 XX  
 XX Query Match 89.5%; Score 77; DB 21; Length 110;  
 XX Best Local Similarity 100.0%; Pred. No. 1.1e-06;  
 XX Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 XX  
 XX QY 2 EESNTMQIMRIKPH 16  
 XX |||||  
 XX Db 72 EESNTMQIMRIKPH 86  
 XX  
 XX RESULT 13  
 XX AAG79276  
 XX ID AAG79276 standard; peptide; 110 AA.  
 XX  
 XX AAG79276;  
 XX  
 XX AC 03-JAN-2002 (first entry)  
 XX  
 XX DT Primary sequence of vascular endothelial growth factor (VEGF).  
 XX  
 XX DE Kinase domain receptor; KDR; vascular endothelial growth factor; VEGF;  
 XX  
 XX

KW VEGF antibody; angiogenesis; cancer; diabetic retinopathy; psoriasis;  
 KW hemangioblastoma; Kaposi's sarcoma.  
 XX  
 XX OS Unidentified.  
 XX XX WO200172829-A2.  
 XX XX PD 04-OCT-2001.  
 XX XX PF 29-MAR-2001; 2001WO-IB00577.  
 XX XX PR 31-MAR-2000; 2000US-193396P.  
 XX XX PA (INSP ) INST PASTEUR.  
 XX XX PA (CNRS ) CNRS CENT NAT RECH SCI.  
 XX XX PA (UPPA-) UNIV PARIS 13 NORD.  
 XX PI Tournaire R, Demangel C, Derbin C, Perret G, Mazze J, Plouet J;  
 XX PI Vasey R;  
 XX WPI, 2001-616471/71.  
 XX DR Novel peptides inhibiting binding of vascular endothelial growth factor  
 XX (VEGF) to kinase domain receptor, or inhibiting binding of anti-VEGF  
 XX antibody to VEGF, useful for treating diabetic retinopathy and  
 XX psoriasis -  
 XX  
 XX Example; Page 21, 55pp; English.  
 XX  
 XX The present sequence represents vascular endothelial growth factor  
 XX (VEGF). The specification describes peptides which bind to an  
 XX anti-VEGF antibody or which bind to a kinase domain receptor (KDR).  
 XX The peptides inhibit the binding of VEGF to KDR, and inhibit binding  
 XX of anti-VEGF antibody to VEGF. The peptides are useful for inhibiting  
 XX angiogenesis and for treating diseases including cancer, diabetic  
 XX retinopathy, psoriasis, hemangioblastoma, and Kaposi's sarcoma.  
 XX  
 XX Sequence 110 AA;  
 XX  
 XX Query Match 89.5%; Score 77; DB 22; Length 110;  
 XX Best Local Similarity 100.0%; Pred. No. 1.1e-06;  
 XX Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 XX  
 XX QY 2 EESNTMQIMRIKPH 16  
 XX |||||  
 XX Db 72 EESNTMQIMRIKPH 86  
 XX  
 XX RESULT 14  
 XX AAB50436  
 XX ID AAB50436 standard; Protein; 110 AA.  
 XX  
 XX AC AAB50436;  
 XX  
 XX DT 13-MAR-2001 (first entry)  
 XX  
 XX DE Human VEGF110.  
 XX  
 XX Human; VEGF; vascular endothelial growth factor; VEGF121; VEGF145;  
 XX cardiant; cerebroprotective; hypotensive; nephrotoxic; antidiabetic;  
 XX dermatological; immunosuppressive; antiinflammatory; cytostatic;  
 XX vasotropic; antibacterial; angiogenesis; vascular remodeling;  
 XX vascular disease; kidney disease; diabetes; systemic lupus erythematosus;  
 XX meningitis; tumour; infection; lung disease inflammatory bowel disease.  
 XX  
 XX OS Homo sapiens.  
 XX  
 XX PN WO200071713-A1.  
 XX  
 XX PD 30-NOV-2000.  
 XX  
 XX PF 18-MAY-2000; 2000WO-US13536.  
 XX

PR 20-MAY-1999; 99US-0135312.  
 XX  
 XX (SCIO-) SCIOS INC.  
 XX  
 PI Pollitt NS, Abraham JA;  
 XX  
 DR WPI; 2001-025162/03.  
 XX  
 PT Enhancing biological activity of vascular endothelial growth factor by  
 PT replacing a Cys residue, for producing variant useful for treating  
 PT hypertension, stroke, diabetes, lupus, glomerulonephritis, meningitis,  
 PT tumor, pneumonia, infections -  
 XX  
 PS Disclosure; Fig 12; 62pp; English.  
 XX  
 CC The present sequence is given in a specification relating to a method for  
 CC enhancing the biological activity of a vascular endothelial growth factor  
 CC (VEGF) originally having a cysteine residue at a position 116 of the 121  
 CC amino acid native mature human VEGF. The method comprises eliminating the  
 CC cysteine residue to produce a VEGF variant. The variant is useful for  
 CC inducing angiogenesis or vascular remodeling, for prevention or repair  
 CC of injury to blood vessels, where injury is associated with haemolytic  
 CC uremic syndrome (HUS) or microvascular angiodopathy such as thrombotic  
 CC microangiopathy (TMA). The VEGF variant is also useful for treatment of  
 CC essential hypertension in a patient. The variant is useful for treating  
 CC coronary artery disease and/or peripheral arterial disease, to foster  
 CC myocardial blood vessel growth and to improve blood flow to the heart. It  
 CC is useful for the treatment and prevention of kidney diseases associated  
 CC with injury to, or atrophy of, the vasculature of the glomerulus and  
 CC interstitium and for the treatment and prevention of acute renal failure,  
 CC myocardial infarction, ischaemic bowel disease, transient ischaemic  
 CC attacks, stroke, hypoxia, hypercapnia, focal glomerulosclerosis,  
 CC amyloidosis, glomerulonephritis, diabetes, systemic lupus erythematosus  
 CC or chronic hypoxia/atrophy. It is also useful in the preservation or  
 CC enhancement of function of organ allografts and xenografts, and for  
 CC treating disorders related to abnormal transport of solutes across  
 CC endothelial cells such as meningitis, tumour, infections, disorders of  
 CC bone growth, acute respiratory distress syndrome, toxic alveolar injury,  
 CC pneumonia, cystic fibrosis, inflammatory bowel disease, infectious  
 CC diarrhoea or cardiac valve disease.  
 CC  
 XX  
 SQ Sequence 110 AA;  
 Query Match 89.5%; Score 77; DB 22; Length 110;  
 Best Local Similarity 100.0%; Pred. No. 1.1e-06;  
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 2 EESNITWQIMRIKPH 16  
 DB 72 EESNITWQIMRIKPH 86  
 RESULT 15  
 ID ABB76304 standard; Protein; 110 AA.  
 XX  
 AC ABB76304;  
 XX  
 DT 12-AUG-2002 (first entry)  
 XX  
 DE Human vascular endothelial growth factor 110.  
 XX  
 KW Vascular endothelial growth factor; VEGF; hVEGF10; human;  
 KW hypertension; hypotensive; nephrotropic; cerebroprotective;  
 KW antibacterial; cytostatic; antialcoholic; virucide; vasotropic;  
 KW antidiarrhoeal; immunosuppressive; cardiant; antiinflammatory;  
 KW angiogenic factor.  
 XX  
 OS Homo sapiens.  
 XX  
 XX US6352975-B1.  
 XX  
 XX 05-MAR-2002.

XX  
 PF 09-SEP-1999; 99US-0392932.  
 XX  
 PR 09-SEP-1998; 98US-099694P.  
 PR 26-MAR-1999; 99US-126406P.  
 PR 27-MAR-1999; 99US-126615P.  
 XX  
 XX (SCIO-) SCIOS INC.  
 PA  
 PI Schreiner GF, Johnson RJ;  
 XX  
 DR WPI; 2002-412951/44.  
 XX  
 PT New method, useful in treatment of salt-sensitive hypertension,  
 PT comprises administration of a vascular endothelial growth factor to a  
 PT patient -  
 XX  
 PS Disclosure; Fig 11; 30pp; English.  
 XX  
 CC The present sequence is the protein sequence of human vascular  
 CC endothelial growth factor 110 (hVEGF10). The present invention  
 CC concerns methods for the treatment of salt-sensitive hypertension  
 CC by administering a VEGF in an amount effective to reduce the blood  
 CC pressure of a salt-sensitive hypertension patient to a normal  
 CC range. The VEGF is preferably hVEGF121 (see ABB76299) or a VEGF  
 CC that has had its heparin-binding domain modified to render it  
 CC incapable of binding heparin, e.g. by amino acid alteration.  
 CC VEGF10 is not one of the preferred VEGF molecules. The method can  
 CC also be used to treat disorders relating to abnormal transport of  
 CC solutes across endothelial cells, including treatment or prevention  
 CC of kidney disease associated with impaired filtration or excretion  
 CC of solutes, central nervous system diseases associated with  
 CC alterations in cerebrospinal fluid synthesis, composition or  
 CC circulation including stroke, meningitis, tumour, infections, and  
 CC disorders of bone growth, hypoxia or hypercapnia or fibrosis  
 CC arising from accumulation of fluid secretions in lungs or  
 CC impediments to their removal, including acute respiratory distress  
 CC syndrome, toxic alveolar injury as occurs in smoke inhalation,  
 CC pneumonia including viral and bacterial infections, surgical  
 CC interventions, cystic fibrosis, and other inherited or acquired  
 CC disease of the lung associated with fluid accumulation in the  
 CC pulmonary air space, pulmonary endothelium injury, disordered  
 CC transport of fluid and solutes across the intestinal epithelium,  
 CC including inflammatory bowel disease, infections, diarrhoea,  
 CC ascites accumulation in the peritoneum as occurs in the failure of  
 CC heart, liver and kidney, preservation and enhancement of function  
 CC of organ allografts, and cardiac valve disease.  
 CC  
 XX  
 SQ Sequence 110 AA;  
 Query Match 89.5%; Score 77; DB 23; Length 110;  
 Best Local Similarity 100.0%; Pred. No. 1.1e-06;  
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 2 EESNITWQIMRIKPH 16  
 DB 72 EESNITWQIMRIKPH 86  
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 Job time : 22.0327 secs



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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:35:33 ; Search time 6.81026 seconds  
(without alignments)  
99.405 Million cell updates/sec

Title: US-09-266-543-9

Perfect score: 86

Sequence: 1 CESNITWQIMRIKPH 16

Scoring table: BLOSUM62  
Gapop 10.0, Gapext 0.5

Searched: 328717 seqs, 42310858 residues

Total number of hits satisfying chosen parameters: 328717

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Issued Patents AA:

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4: /cgn2\_6/ptodata/1/1aa/6B\_COMB.pep:\*  
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6: /cgn2\_6/ptodata/1/1aa/backfiles1.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	77	89.5	36	US-09-092-000-4	Sequence 4, Appl1
2	77	89.5	109	US-08-691-794-3	Sequence 3, Appl1
3	77	89.5	110	US-09-392-932-11	Sequence 11, Appl1
4	77	89.5	110	US-09-574-708A-11	Sequence 11, Appl1
5	77	89.5	110	US-09-822-270-17	Sequence 17, Appl1
6	77	89.5	121	5194596-19	Patent No. 5194596
7	77	89.5	121	5219739-20	Patent No. 5219739
8	77	89.5	136	US-09-037-983C-15	Sequence 15, Appl1
9	77	89.5	137	US-09-037-983C-17	Sequence 17, Appl1
10	77	89.5	138	US-09-037-983C-16	Sequence 16, Appl1
11	77	89.5	141	US-09-519-476-2	Sequence 2, Appl1
12	77	89.5	145	US-08-784-551C-2	Sequence 2, Appl1
13	77	89.5	145	US-09-392-932-2	Sequence 2, Appl1
14	77	89.5	145	US-09-574-708A-4	Sequence 4, Appl1
15	77	89.5	145	US-09-037-983C-2	Sequence 2, Appl1
16	77	89.5	147	US-08-807-992B-1	Sequence 1, Appl1
17	77	89.5	147	US-09-392-932-1	Sequence 1, Appl1
18	77	89.5	147	US-08-706-054A-4	Sequence 4, Appl1
19	77	89.5	147	US-09-574-708A-2	Sequence 2, Appl1
20	77	89.5	147	US-09-431-888-3	Sequence 3, Appl1
21	77	89.5	147	US-09-313-299-4	Sequence 24, Appl1
22	77	89.5	164	US-09-244-583-24	Sequence 24, Appl1
23	77	89.5	165	US-08-882-816-3	Sequence 3, Appl1
24	77	89.5	165	US-08-802-052B-3	Sequence 3, Appl1
25	77	89.5	165	5194596-18	Patent No. 5194596
26	77	89.5	165	5219739-19	Patent No. 5219739
27	77	89.5	188	US-09-244-583-28	Sequence 28, Appl1

28	77	89.5	191	US-08-567-200A-2	Sequence 2, Appl1
29	77	89.5	191	US-08-807-992B-2	Sequence 2, Appl1
30	77	89.5	191	US-08-691-794-2	Sequence 2, Appl1
31	77	89.5	191	US-08-795-430-56	Sequence 56, Appl1
32	77	89.5	191	US-09-392-932-3	Sequence 3, Appl1
33	77	89.5	191	US-09-355-700-56	Sequence 56, Appl1
34	77	89.5	191	US-08-882-816-2	Sequence 2, Appl1
35	77	89.5	191	US-09-574-708A-6	Sequence 6, Appl1
36	77	89.5	191	US-08-802-052B-2	Sequence 2, Appl1
37	77	89.5	191	US-09-431-888-4	Sequence 4, Appl1
38	77	89.5	191	5332671-4	Patent No. 5332671
39	77	89.5	208	US-09-244-583-26	Sequence 26, Appl1
40	77	89.5	213	US-09-574-708A-8	Sequence 8, Appl1
41	77	89.5	214	5240848-11	Patent No. 5240848
42	77	89.5	215	US-08-807-992B-3	Sequence 3, Appl1
43	77	89.5	215	US-08-586-039B-49	Sequence 49, Appl1
44	77	89.5	215	US-09-699-769-49	Sequence 49, Appl1
45	77	89.5	215	5240848-7	Patent No. 5240848

## ALIGNMENTS

RESULT 1  
US-09-092-000-4  
Sequence 4, Application US/09092000  
Patent No. 6339139  
GENERAL INFORMATION:  
APPLICANT: Tian, Jian-ten  
TITLE OF INVENTION: Receptor-Mediated Gene Transfer System for Targeting  
FILE REFERENCE: Gu  
CURRENT APPLICATION NUMBER: US/09/092,000  
CURRENT FILING DATE: 1998-08-26  
EARLIER APPLICATION NUMBER: 96 116557.X  
EARLIER FILING DATE: 1996-10-31  
EARLIER APPLICATION NUMBER: PCT/CN97/00106  
EARLIER FILING DATE: 1997-10-27  
NUMBER OF SEQ ID NOS: 5  
SOFTWARE: Patent Ver. 2.0  
SEQ ID NO 4  
LENGTH: 36  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: Ligand  
US-09-092-000-4  
OTHER INFORMATION: oligopeptide for the receptor region of VEGF.  
Query Match 89.5%; Score 77; DB 4; Length 36;  
Best Local Similarity 100.0%; Pred. No. 3.3e-08;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 2 EESNITWQIMRIKPH 16  
DB 5 EESNITWQIMRIKPH 19  
US-08-691-794-3  
Sequence 3, Application US/08691794  
Patent No. 6057428  
GENERAL INFORMATION:  
APPLICANT: Keyt, Bruce A.  
APPLICANT: Nguyen, Francis H.  
APPLICANT: Petrarra, Napoleone  
APPLICANT: Cunningham, Brian C.  
APPLICANT: Wells, James A.  
TITLE OF INVENTION: Variants of Vascular Endothelial Cell  
TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their  
TITLE OF INVENTION: Production

NUMBER OF SEQUENCES: 45  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Flehr, Hohbach, Test, Albritton & Herbert  
STREET: Four Embarcadero Center, Suite 3400  
CITY: San Francisco  
STATE: California  
COUNTRY: United States  
ZIP: 94111-4187  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/691,794  
FILING DATE: 02-AUG-1996  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 60/002,827  
FILING DATE: 25-AUG-1995  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/567,200  
FILING DATE: 05-DEC-1995  
ATTORNEY/AGENT INFORMATION:  
NAME: Dreger, Walter H.  
REGISTRATION NUMBER: 24,190  
REFERENCE/DOCKET NUMBER: A-63758/MHD  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (415) 781-1989  
TELEFAX: (415) 398-3249  
TELEX: 910 277299  
INFORMATION FOR SEQ ID NO: 3:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 109 amino acids  
TYPE: amino acid  
STRANDEDNESS: unknown  
TOPOLOGY: unknown  
MOLECULE TYPE: protein  
US-08-691-794-3

Query Match 89.5%; Score 77; DB 3; Length 109;  
Best Local Similarity 100.0%; Pred. No. 1.2e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
Qy 2 EESNITWQIMRIKPH 16  
Db 72 EESNITWQIMRIKPH 86  
RESULT 3  
US-09-392-932-11  
Sequence 11, Application US/09392932  
Patent No. 6352975  
GENERAL INFORMATION:  
APPLICANT: Schreiner, George F.  
APPLICANT: Johnson, Richard J.  
TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND  
TITLE OF INVENTION: COMPOSITIONS FOR USE THEREIN  
FILE REFERENCE: SCIOS.002A  
CURRENT APPLICATION NUMBER: US/09/392,932  
CURRENT FILING DATE: 1999-09-09  
EARLIER APPLICATION NUMBER: 60/099,694  
EARLIER FILING DATE: 1998-09-09  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 11  
LENGTH: 110  
TYPE: PRT  
ORGANISM: Homo Sapiens  
US-09-392-932-11  
Query Match 89.5%; Score 77; DB 4; Length 110;  
Best Local Similarity 100.0%; Pred. No. 1.3e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
Qy 2 EESNITWQIMRIKPH 16  
Db 72 EESNITWQIMRIKPH 86  
RESULT 4  
US-09-574-708A-11  
Sequence 11, Application US/09574708A  
Patent No. 6475796  
GENERAL INFORMATION:  
APPLICANT: N. Stephen Pollitt  
APPLICANT: Judith A. Abraham  
TITLE OF INVENTION: Vascular endothelial growth factor  
TITLE OF INVENTION: variants  
FILE REFERENCE: SCIOS004A  
CURRENT APPLICATION NUMBER: US/09/574,708A  
CURRENT FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/135,312  
PRIOR FILING DATE: 1999-05-20  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 11  
LENGTH: 110  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-574-708A-11  
Query Match 89.5%; Score 77; DB 4; Length 110;  
Best Local Similarity 100.0%; Pred. No. 1.3e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
Db 72 EESNITWQIMRIKPH 86  
RESULT 5  
US-09-822-270-17  
Sequence 17, Application US/09822270  
Patent No. 6559126  
GENERAL INFORMATION:  
APPLICANT: TOURNIAIRE, ROSELYNE  
APPLICANT: DEMANGEL, CAROLINE  
APPLICANT: DERRIN, CLAUDE  
APPLICANT: PERRER, GERARD  
APPLICANT: MAZIE, JEAN-CLAUDE  
APPLICANT: PLOUET, JEAN  
APPLICANT: VASSAY, ROGER  
TITLE OF INVENTION: PEPTIDES BLOCKING VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF)-MEDI-  
TITLE OF INVENTION: ANGIOGENESIS, POLYNUCLEOTIDES ENCODING SAID PEPTIDES AND METHODS  
FILE REFERENCE: 205060U0  
CURRENT APPLICATION NUMBER: US/09/822,270  
CURRENT FILING DATE: 2001-04-02  
PRIOR APPLICATION NUMBER: US 60/193,396  
PRIOR FILING DATE: 2000-03-31  
NUMBER OF SEQ ID NOS: 17  
SOFTWARE: PatentIn version 3.1  
SEQ ID NO 17  
LENGTH: 110  
TYPE: PRT  
ORGANISM: ARTIFICIAL SEQUENCE  
FEATURES:  
OTHER INFORMATION: SYNTHETIC PEPTIDE  
US-09-822-270-17  
Query Match 89.5%; Score 77; DB 4; Length 110;  
Best Local Similarity 100.0%; Pred. No. 1.3e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
Db 72 EESNITWQIMRIKPH 86  
Query Match 89.5%; Score 77; DB 4; Length 110;  
Best Local Similarity 100.0%; Pred. No. 1.3e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 72 EESNITWQIMRIKPH 86

RESULT 6  
5194596-19  
Patent No. 5194596  
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN  
C.; MITCHELL, RICHARD L.  
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL  
GROWTH FACTOR  
NUMBER OF SEQUENCES: 32  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/450, 883  
FILING DATE: 14-DEC-1989  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 387, 545  
FILING DATE: 27-JUL-1989  
SEQ ID NO: 19  
5194596-19  
LENGTH: 121

Query Match 89.5%; Score 77; DB 6; Length 121;  
Best Local Similarity 100.0%; Pred. No. 1.4e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
72 EESNITWQIMRIKPH 86

RESULT 7  
5219739-20  
Patent No. 5219739  
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,  
JOHN C.; MITCHELL, RICHARD L.  
TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGEF120 AND  
HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN  
VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGEF120 AND HVEGF121  
NUMBER OF SEQUENCES: 40  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/559, 041  
FILING DATE: 27-JUL-1990  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 450, 883  
FILING DATE: 14-DEC-1989  
APPLICATION NUMBER: 387, 545  
FILING DATE: 27-JUL-1989  
SEQ ID NO: 20  
5219739-20  
LENGTH: 121

Query Match 89.5%; Score 77; DB 6; Length 121;  
Best Local Similarity 100.0%; Pred. No. 1.4e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
72 EESNITWQIMRIKPH 86

RESULT 8  
US-09-037-983C-15  
Sequence 15; Application US/09037983C  
Patent No. 6583276  
GENERAL INFORMATION:  
APPLICANT: Newfield, Gera  
APPLICANT: Keshet, Eli  
APPLICANT: Vlodavsky, Israel  
APPLICANT: Poltorak, Zoya  
TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease  
FILE REFERENCE: 000274-00009  
CURRENT APPLICATION NUMBER: US/09/037, 983C  
CURRENT FILING DATE: 1998-03-11

PRIOR APPLICATION NUMBER: 60/025, 537  
PRIOR FILING DATE: 1996-09-06  
NUMBER OF SEQ ID NOS: 17  
SOFTWARE: PatentIn version 3.1  
SEQ ID NO 15  
LENGTH: 136  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-037-983C-15

Query Match 89.5%; Score 77; DB 4; Length 136;  
Best Local Similarity 100.0%; Pred. No. 1.6e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
72 EESNITWQIMRIKPH 86

RESULT 9  
US-09-037-983C-17  
Sequence 17; Application US/09037983C  
Patent No. 6583276  
GENERAL INFORMATION:  
APPLICANT: Newfield, Gera  
APPLICANT: Keshet, Eli  
APPLICANT: Vlodavsky, Israel  
APPLICANT: Poltorak, Zoya  
TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease  
FILE REFERENCE: 000274-00009  
CURRENT APPLICATION NUMBER: US/09/037, 983C  
CURRENT FILING DATE: 1998-03-11  
PRIOR APPLICATION NUMBER: 60/025, 537  
PRIOR FILING DATE: 1996-09-06  
NUMBER OF SEQ ID NOS: 17  
SOFTWARE: PatentIn version 3.1  
SEQ ID NO 17  
LENGTH: 137  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-037-983C-17

Query Match 89.5%; Score 77; DB 4; Length 137;  
Best Local Similarity 100.0%; Pred. No. 1.6e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
72 EESNITWQIMRIKPH 86

RESULT 10  
US-09-037-983C-16  
Sequence 16; Application US/09037983C  
Patent No. 6583276  
GENERAL INFORMATION:  
APPLICANT: Newfield, Gera  
APPLICANT: Keshet, Eli  
APPLICANT: Vlodavsky, Israel  
APPLICANT: Poltorak, Zoya  
TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease  
FILE REFERENCE: 000274-00009  
CURRENT APPLICATION NUMBER: US/09/037, 983C  
CURRENT FILING DATE: 1998-03-11  
PRIOR APPLICATION NUMBER: 60/025, 537  
PRIOR FILING DATE: 1996-09-06  
NUMBER OF SEQ ID NOS: 17  
SOFTWARE: PatentIn version 3.1  
SEQ ID NO 16  
LENGTH: 138  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-037-983C-16

Query Match 89.5%; Score 77; DB 4; Length 138;  
Best Local Similarity 100.0%; Pred. No. 1.7e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
Db 72 EESNITWQIMRIKPH 86

RESULT 11

US-09-519-476-2  
Sequence 2, Application US/09519476  
Patent No. 6506884  
GENERAL INFORMATION:  
APPLICANT: MINTZ, Ilat et al.  
TITLE OF INVENTION: NOVEL NUCLEIC ACID AND AMINO ACID SEQUENCES  
FILE REFERENCE: 2786-0149P  
CURRENT APPLICATION NUMBER: US/09/519,476  
CURRENT FILING DATE: 2000-03-09  
PRIOR APPLICATION NUMBER: I1128852  
PRIOR FILING DATE: 1999-03-05  
NUMBER OF SEQ ID NOS: 2  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 2  
LENGTH: 141  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-519-476-2

Query Match 89.5%; Score 77; DB 4; Length 141;  
Best Local Similarity 100.0%; Pred. No. 1.7e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
Db 98 EESNITWQIMRIKPH 112

RESULT 12

US-08-784-551C-2  
Sequence 2, Application US/08784551C  
Patent No. 6013780  
GENERAL INFORMATION:  
APPLICANT: Gera Neufeld  
APPLICANT: Eli Keshet  
APPLICANT: Israel Vlodavsky  
APPLICANT: Zoya Poltorak  
TITLE OF INVENTION: ANGIOGENIC FACTOR AND USE THEREOF  
TITLE OF INVENTION: IN TREATING CARDIOVASCULAR DISEASE  
NUMBER OF SEQUENCES: 9  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Blank, Rome, Comisky & McCauley LLP  
STREET: 900 17th Street, N.W.  
CITY: Washington, D.C.  
STATE: N/A  
COUNTRY: U.S.A.  
ZIP: 20006  
COMPUTER READABLE FORM:  
MEDIUM TYPE: 3.5" Diskette, 1.44 Mb  
MEDIUM TYPE: storage  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: IBM P.C. DOS 5.0  
SOFTWARE: FastSeq for Windows 2.0  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/784,551C  
FILING DATE: January 21, 1997  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER:  
FILING DATE:  
ATTORNEY/AGENT INFORMATION:

NAME: Cohen, Herbert  
REGISTRATION NUMBER: 25,109  
REFERENCE/DOCKET NUMBER: 0274,005/P003  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (202) 463-7700  
TELEFAX: (202) 463-6915  
TELEX:  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 145 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
US-08-784-551C-2

Query Match 89.5%; Score 77; DB 3; Length 145;  
Best Local Similarity 100.0%; Pred. No. 1.8e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
Db 72 EESNITWQIMRIKPH 86

RESULT 13

US-09-392-932-2  
Sequence 2, Application US/09392932  
Patent No. 6352975  
GENERAL INFORMATION:  
APPLICANT: Schreiner, George F.  
APPLICANT: Johnson, Richard J.  
TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND  
TITLE OF INVENTION: COMPOSITIONS FOR USE THEREIN  
FILE REFERENCE: SCIOS 002A  
CURRENT APPLICATION NUMBER: US/09/392,932  
CURRENT FILING DATE: 1999-09-09  
EARLIER APPLICATION NUMBER: 60/099,694  
EARLIER FILING DATE: 1998-09-09  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 2  
LENGTH: 145  
TYPE: PRT  
ORGANISM: Homo Sapiens  
US-09-392-932-2

Query Match 89.5%; Score 77; DB 4; Length 145;  
Best Local Similarity 100.0%; Pred. No. 1.8e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
Db 72 EESNITWQIMRIKPH 86

RESULT 14

US-09-574-708A-4  
Sequence 4, Application US/09574708A  
Patent No. 6475796  
GENERAL INFORMATION:  
APPLICANT: N. Stephen Pollitt  
APPLICANT: Judith A. Abraham  
TITLE OF INVENTION: Vascular endothelial growth factor  
TITLE OF INVENTION: variants  
FILE REFERENCE: SCIOS004A  
CURRENT APPLICATION NUMBER: US/09/574,708A  
CURRENT FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/135,312  
PRIOR FILING DATE: 1999-05-20  
NUMBER OF SEQ ID NOS: 11  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 4  
LENGTH: 145

TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-574-708A-4

Query Match 89.5%; Score 77; DB 4; Length 145;  
Best Local Similarity 100.0%; Pred. No. 1.8e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 EESNITMOIMRIKPH 16  
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Db 72 EESNITMOIMRIKPH 86

RESULT 15  
US-09-037-983C-2

Sequence 2, Application US/09037983C  
Patent No. 6583276  
GENERAL INFORMATION:  
APPLICANT: Newfeld, Gera  
APPLICANT: Keshet, Eli  
APPLICANT: Vlodayevy, Israel  
APPLICANT: Poltorak, Zoya  
TITLE OF INVENTION: Angiogenic Factor and Use Thereof in Treating Cardiovascular Disease  
FILE REFERENCE: 000274-00009  
CURRENT APPLICATION NUMBER: US/09/037,983C  
CURRENT FILING DATE: 1998-03-11  
PRIOR APPLICATION NUMBER: 60/025,537  
PRIOR FILING DATE: 1996-09-06  
NUMBER OF SEQ ID NOS: 17  
SOFTWARE: Patent in version 3.1  
SEQ ID NO 2  
LENGTH: 145  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-037-983C-2

Query Match 89.5%; Score 77; DB 4; Length 145;  
Best Local Similarity 100.0%; Pred. No. 1.8e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 EESNITMOIMRIKPH 16  
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Db 72 EESNITMOIMRIKPH 86

Search completed: January 30, 2004, 11:47:52  
Job time : 6.81026 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:44:49 ; Search time 15.8359 Seconds  
(without alignments)  
209.978 Million cell updates/sec

Title: US-09-266-543-9  
Perfect score: 86  
Sequence: 1 CEESNITWQIRKPH 16

Scoring table: BLOSUM62  
Gapop 10.0, Gapext 0.5

Searched: 789580 seqs, 207824079 residues

Total number of hits satisfying chosen parameters: 789580

Minimum DB seq length: 0  
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Maximum Match 100%  
Listing first 45 summaries

Database: Published Applications\_AA:\*

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2: /cgn2\_6/ptodata/2/pubpaa/PCT\_NEW\_PUB.pep:\*  
3: /cgn2\_6/ptodata/2/pubpaa/US06\_NEW\_PUB.pep:\*  
4: /cgn2\_6/ptodata/2/pubpaa/US06\_PUBCOMB.pep:\*  
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12: /cgn2\_6/ptodata/2/pubpaa/US09C\_NEW\_PUB.pep:\*  
13: /cgn2\_6/ptodata/2/pubpaa/US10\_PUBCOMB.pep:\*  
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17: /cgn2\_6/ptodata/2/pubpaa/US60\_NEW\_PUB.pep:\*  
18: /cgn2\_6/ptodata/2/pubpaa/US60\_PUBCOMB.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	77	89.5	47	US-10-139-876-13	Sequence 13, Appl
2	77	89.5	79	US-10-086-623-14	Sequence 14, Appl
3	77	89.5	79	US-10-260-539-14	Sequence 14, Appl
4	77	89.5	101	US-09-832-355A-2	Sequence 2, Appl
5	77	89.5	105	US-09-925-299-927	Sequence 927, Appl
6	77	89.5	105	US-09-795-006A-51	Sequence 51, Appl
7	77	89.5	105	US-09-795-006A-59	Sequence 59, Appl
8	77	89.5	105	US-09-795-006A-161	Sequence 161, Appl
9	77	89.5	105	US-09-795-006A-163	Sequence 163, Appl
10	77	89.5	105	US-09-925-299-927	Sequence 927, Appl
11	77	89.5	110	US-09-823-270-17	Sequence 17, Appl
12	77	89.5	110	US-10-342-371-17	Sequence 17, Appl
13	77	89.5	110	US-10-392-931-10	Sequence 10, Appl
14	77	89.5	110	US-10-392-931-11	Sequence 11, Appl
15	77	89.5	110	US-10-418-529-10	Sequence 10, Appl

16	77	89.5	110	US-10-418-529-11	Sequence 11, Appl
17	77	89.5	110	US-10-083-817-11	Sequence 11, Appl
18	77	89.5	110	US-10-268-447-11	Sequence 11, Appl
19	77	89.5	121	US-09-832-355A-1	Sequence 1, Appl
20	77	89.5	126	US-09-795-006A-43	Sequence 43, Appl
21	77	89.5	126	US-09-795-006A-55	Sequence 55, Appl
22	77	89.5	126	US-09-795-006A-63	Sequence 63, Appl
23	77	89.5	127	US-09-795-006A-47	Sequence 47, Appl
24	77	89.5	127	US-09-795-006A-83	Sequence 83, Appl
25	77	89.5	127	US-09-795-006A-87	Sequence 87, Appl
26	77	89.5	127	US-09-795-006A-91	Sequence 91, Appl
27	77	89.5	127	US-09-795-006A-95	Sequence 95, Appl
28	77	89.5	141	US-10-298-794-2	Sequence 2, Appl
29	77	89.5	145	US-10-319-828-2	Sequence 2, Appl
30	77	89.5	145	US-10-392-931-4	Sequence 4, Appl
31	77	89.5	145	US-10-418-529-4	Sequence 4, Appl
32	77	89.5	145	US-10-083-817-2	Sequence 2, Appl
33	77	89.5	145	US-10-268-447-4	Sequence 4, Appl
34	77	89.5	147	US-10-346-802-4	Sequence 4, Appl
35	77	89.5	147	US-10-392-931-2	Sequence 2, Appl
36	77	89.5	147	US-10-418-529-2	Sequence 2, Appl
37	77	89.5	147	US-10-083-817-1	Sequence 1, Appl
38	77	89.5	147	US-10-268-447-2	Sequence 2, Appl
39	77	89.5	150	US-09-832-355A-61	Sequence 61, Appl
40	77	89.5	154	US-09-832-355A-59	Sequence 59, Appl
41	77	89.5	154	US-09-832-355A-62	Sequence 62, Appl
42	77	89.5	162	US-09-832-355A-60	Sequence 60, Appl
43	77	89.5	164	US-10-293-157-24	Sequence 24, Appl
44	77	89.5	165	US-10-318-102-1	Sequence 1, Appl
45	77	89.5	165	US-10-200-050-3	Sequence 3, Appl

## ALIGNMENTS

RESULT 1  
US-10-139-876-13  
; Sequence 13, Application US/10139876  
; Publication No. US20020123481A1  
GENERAL INFORMATION:  
APPLICANT: Oliviero, Salvatore  
TITLE OF INVENTION: C-Fos Induced Growth Factor (Figf) And Dna Encoding Same  
FILE REFERENCE: 35784/205172  
CURRENT APPLICATION NUMBER: US/10/139,876  
CURRENT FILING DATE: 2002-05-07  
PRIOR APPLICATION NUMBER: 09/043,476  
PRIOR FILING DATE: 1998-03-18  
PRIOR APPLICATION NUMBER: PCT/IB96/0113  
PRIOR FILING DATE: 1996-09-30  
PRIOR APPLICATION NUMBER: GB9612368.2  
PRIOR FILING DATE: 1996-06-13  
PRIOR APPLICATION NUMBER: GB9519928.7  
NUMBER OF SEQ ID NOS: 20  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 13  
LENGTH: 47  
TYPE: PRT  
ORGANISM: unknown  
FEATURE:  
OTHER INFORMATION: mammalian  
FEATURE:  
NAME/KEY: PEPTIDE  
LOCATION: (1)...(47)  
OTHER INFORMATION: segment of VEGF  
US-10-139-876-13

Query Match 89.5%; Score 77; DB 14; Length 47;  
Best Local Similarity 100.0%; Pred. No. 9.5e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 2 EESNITWQIRKPH 16  
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Db 12 EESNITWQIMRIKPH 26

## RESULT 2

US-10-086-623-14

Sequence 14, Application US/10086623  
Publication No. US20020164710A1

GENERAL INFORMATION:

APPLICANT: ERIKSSON, Ulf

APPLICANT: AASE, Karin

APPLICANT: LI, Xuri

APPLICANT: PONTEN, Annica

APPLICANT: TUTTELA, Marko

APPLICANT: ALITALO, Kari

APPLICANT: OESTMAN, Arne

APPLICANT: HELDIN, Carl-Henrik

TITLE OF INVENTION: PLATELET DERIVED GROWTH FACTOR D, DNA CODING THEREFOR AND USES TH

FILE REFERENCE: 1064/44833C2

CURRENT FILING DATE: 2000-03-04

PRIOR APPLICATION NUMBER: US 60/107,852

PRIOR FILING DATE: 1998-11-10

PRIOR APPLICATION NUMBER: US 60/113,997

PRIOR FILING DATE: 1998-12-28

PRIOR APPLICATION NUMBER: US 60/150,604

PRIOR FILING DATE: 1999-08-26

PRIOR APPLICATION NUMBER: US 60/157,108

PRIOR FILING DATE: 1999-10-04

PRIOR APPLICATION NUMBER: US 60/157,756

PRIOR FILING DATE: 1999-10-05

PRIOR APPLICATION NUMBER: US 09/438,046

PRIOR FILING DATE: 1999-11-10

PRIOR APPLICATION NUMBER: US 09/691,200

PRIOR FILING DATE: 2000-10-19

NUMBER OF SEQ ID NOS: 42

SOFTWARE: PatentIn version 3.1

SEQ ID NO 14

LENGTH: 79

TYPE: PRT

ORGANISM: Homo sapiens

FEATURE:

NAME/KEY: misc feature

OTHER INFORMATION: PDGF/VEGF-homology domain of VEGF-165

US-10-086-623-14

Query Match 89.5%; Score 77; DB 14; Length 79;

Best Local Similarity 100.0%; Pred. No. 1.7e-06;

Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITWQIMRIKPH 16

Db 47 EESNITWQIMRIKPH 61

## RESULT 3

US-10-260-539-14

Sequence 14, Application US/10260539  
Publication No. US20030073637A1

GENERAL INFORMATION:

APPLICANT: ERIKSSON, Ulf

APPLICANT: AASE, Karin

APPLICANT: LI, Xuri

APPLICANT: PONTEN, Annica

APPLICANT: TUTTELA, Marko

APPLICANT: ALITALO, Kari

APPLICANT: OESTMAN, Arne

APPLICANT: HELDIN, Carl-Henrik

TITLE OF INVENTION: PLATELET DERIVED GROWTH FACTOR D, DNA CODING THEREFOR AND USES TH

FILE REFERENCE: 1064/44833C2

CURRENT FILING DATE: 2002-10-01

PRIOR APPLICATION NUMBER: US/10/260,539

PRIOR FILING DATE: 2000-03-04

PRIOR APPLICATION NUMBER: US 60/107,852

PRIOR FILING DATE: 1998-11-10

PRIOR APPLICATION NUMBER: US 60/113,997

PRIOR FILING DATE: 1998-12-28

PRIOR APPLICATION NUMBER: US 60/150,604

PRIOR FILING DATE: 1999-08-26

PRIOR APPLICATION NUMBER: US 60/157,108

PRIOR FILING DATE: 1999-10-04

PRIOR APPLICATION NUMBER: US 60/157,756

PRIOR FILING DATE: 1999-10-05

PRIOR APPLICATION NUMBER: US 09/438,046

PRIOR FILING DATE: 1999-11-10

PRIOR APPLICATION NUMBER: US 09/691,200

PRIOR FILING DATE: 2000-10-19

NUMBER OF SEQ ID NOS: 42

SOFTWARE: PatentIn version 3.1

SEQ ID NO 14

LENGTH: 79

TYPE: PRT

ORGANISM: Homo sapiens

FEATURE:

NAME/KEY: misc feature

OTHER INFORMATION: PDGF/VEGF-homology domain of VEGF-165

US-10-260-539-14

Query Match 89.5%; Score 77; DB 15; Length 79;

Best Local Similarity 100.0%; Pred. No. 1.7e-06;

Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITWQIMRIKPH 16

Db 47 EESNITWQIMRIKPH 61

## RESULT 4

US-09-832-355A-2

Sequence 2, Application US/09832355A  
Publication No. US2003002751A1

GENERAL INFORMATION:

APPLICANT: Kovacs, Imre

APPLICANT: Kessler, Paul

TITLE OF INVENTION: VEGF FUSION PROTEINS

FILE REFERENCE: 205654

CURRENT APPLICATION NUMBER: US/09/832,355A

CURRENT FILING DATE: 2001-04-10

NUMBER OF SEQ ID NOS: 126

SOFTWARE: PatentIn version 3.0

SEQ ID NO 2

LENGTH: 101

TYPE: PRT

ORGANISM: Homo sapiens

US-09-832-355A-2

Query Match 89.5%; Score 77; DB 11; Length 101;

Best Local Similarity 100.0%; Pred. No. 2.3e-06;

Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITWQIMRIKPH 16

Db 64 EESNITWQIMRIKPH 78

## RESULT 5

US-09-925-299-927

Sequence 927, Application US/09925299  
Patent No. US20020055627A1

GENERAL INFORMATION:

APPLICANT: Rosen et al.

TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies

FILE REFERENCE: PA102

CURRENT APPLICATION NUMBER: US/09/925,299

CURRENT FILING DATE: 2001-08-10

PRIOR APPLICATION NUMBER: PCT/US00/05883



PRIOR FILING DATE: 2000-03-08  
PRIOR APPLICATION NUMBER: 60/124,270  
PRIOR FILING DATE: 1999-03-12  
NUMBER OF SEQ ID NOS: 1556  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 927  
LENGTH: 105  
TYPE: PRT  
ORGANISM: Homo sapiens.  
US-09-925-299-927

Query Match 89.5%; Score 77; DB 9; Length 105;  
Best Local Similarity 100.0%; Pred. No. 2.4e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
Db 56 EESNITWQIMRIKPH 70

RESULT 6  
US-09-795-006A-51  
Sequence 51, Application US/09795006A  
Patent No. US20020151680A1  
GENERAL INFORMATION:  
APPLICANT: Allcalo et al  
TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR  
FILE REFERENCE: 28967/35977B  
CURRENT APPLICATION NUMBER: US/09/795,006A  
CURRENT FILING DATE: 2001-02-26  
PRIOR APPLICATION NUMBER: US 60/205,331  
PRIOR FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/185,205  
PRIOR FILING DATE: 2000-02-25  
NUMBER OF SEQ ID NOS: 175  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 51  
LENGTH: 105  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: amino acid sequence of hybrid  
US-09-795-006A-51

Query Match 89.5%; Score 77; DB 10; Length 105;  
Best Local Similarity 100.0%; Pred. No. 2.4e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
Db 65 EESNITWQIMRIKPH 79

RESULT 7  
US-09-795-006A-59  
Sequence 59, Application US/09795006A  
Patent No. US20020151680A1  
GENERAL INFORMATION:  
APPLICANT: Allcalo et al  
TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR  
FILE REFERENCE: 28967/35977B  
CURRENT APPLICATION NUMBER: US/09/795,006A  
CURRENT FILING DATE: 2001-02-26  
PRIOR APPLICATION NUMBER: US 60/205,331  
PRIOR FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/185,205  
PRIOR FILING DATE: 2000-02-25  
NUMBER OF SEQ ID NOS: 175  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 59  
LENGTH: 105

TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: amino acid sequence of hybrid  
US-09-795-006A-59

Query Match 89.5%; Score 77; DB 10; Length 105;  
Best Local Similarity 100.0%; Pred. No. 2.4e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
Db 65 EESNITWQIMRIKPH 79

RESULT 8  
US-09-795-006A-161  
Sequence 161, Application US/09795006A  
Patent No. US20020151680A1  
GENERAL INFORMATION:  
APPLICANT: Allcalo et al  
TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR  
FILE REFERENCE: 28967/35977B  
CURRENT APPLICATION NUMBER: US/09/795,006A  
CURRENT FILING DATE: 2001-02-26  
PRIOR APPLICATION NUMBER: US 60/205,331  
PRIOR FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/185,205  
PRIOR FILING DATE: 2000-02-25  
NUMBER OF SEQ ID NOS: 175  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 161  
LENGTH: 105  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: amino acid sequence of hybrid  
US-09-795-006A-161

Query Match 89.5%; Score 77; DB 10; Length 105;  
Best Local Similarity 100.0%; Pred. No. 2.4e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
Db 66 EESNITWQIMRIKPH 80

RESULT 9  
US-09-795-006A-163  
Sequence 163, Application US/09795006A  
Patent No. US20020151680A1  
GENERAL INFORMATION:  
APPLICANT: Allcalo et al  
TITLE OF INVENTION: MATERIALS AND METHODS INVOLVING HYBRID VASCULAR  
FILE REFERENCE: 28967/35977B  
CURRENT APPLICATION NUMBER: US/09/795,006A  
CURRENT FILING DATE: 2001-02-26  
PRIOR APPLICATION NUMBER: US 60/205,331  
PRIOR FILING DATE: 2000-05-18  
PRIOR APPLICATION NUMBER: US 60/185,205  
PRIOR FILING DATE: 2000-02-25  
NUMBER OF SEQ ID NOS: 175  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 163  
LENGTH: 105  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: amino acid sequence of hybrid  
US-09-795-006A-163

Query Match 89.5%; Score 77; DB 10; Length 105;  
Best Local Similarity 100.0%; Pred. No. 2.4e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
|||||  
Db 65 EESNITWQIMRIKPH 79

RESULT 10  
US-09-925-299-927  
; Sequence 927, Application US/09925299  
; Publication No. US20030040617A9  
; GENERAL INFORMATION:  
; APPLICANT: ROSEN ET AL.  
; TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies  
; FILE REFERENCE: PA102  
; CURRENT APPLICATION NUMBER: US/09/925,299  
; CURRENT FILING DATE: 2001-08-10  
; PRIOR APPLICATION NUMBER: PCT/US00/05883  
; PRIOR FILING DATE: 2000-03-08  
; PRIOR APPLICATION NUMBER: 60/124,270  
; PRIOR FILING DATE: 1999-03-12  
; NUMBER OF SEQ ID NOS: 1556  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO: 927  
; LENGTH: 105  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-09-925-299-927

Query Match 89.5%; Score 77; DB 11; Length 105;  
Best Local Similarity 100.0%; Pred. No. 2.4e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
|||||  
Db 56 EESNITWQIMRIKPH 70

RESULT 11  
US-09-822-270-17  
; Sequence 17, Application US/09822270  
; Patent No. US20020068697A1  
; GENERAL INFORMATION:  
; APPLICANT: TOURNAIRE, ROSELYNE  
; APPLICANT: DEMANGEL, CAROLINE  
; APPLICANT: DERBIN, CLAUDE  
; APPLICANT: PERRET, GERARD  
; APPLICANT: MAZIE, JEAN-CLAUDE  
; APPLICANT: PLOUET, JEAN  
; APPLICANT: VASSAY, ROGER  
; TITLE OF INVENTION: PEPTIDES BLOCKING VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF)-MEDIA  
; FILE REFERENCE: 205060US0  
; CURRENT APPLICATION NUMBER: US/09/822,270  
; CURRENT FILING DATE: 2001-04-02  
; PRIOR APPLICATION NUMBER: US 60/193,396  
; PRIOR FILING DATE: 2000-03-31  
; NUMBER OF SEQ ID NOS: 17  
; SOFTWARE: PatentIn version 3.1  
; SEQ ID NO: 17  
; LENGTH: 110  
; TYPE: PRT  
; ORGANISM: ARTIFICIAL SEQUENCE  
; FEATURE:  
; OTHER INFORMATION: SYNTHETIC PEPTIDE  
US-09-822-270-17

Query Match 89.5%; Score 77; DB 9; Length 110;  
Best Local Similarity 100.0%; Pred. No. 2.5e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
|||||  
Db 72 EESNITWQIMRIKPH 86

RESULT 12  
US-10-342-371-17  
; Sequence 17, Application US/10342371  
; Publication No. US20030171289A1  
; GENERAL INFORMATION:  
; APPLICANT: TOURNAIRE, ROSELYNE  
; APPLICANT: DEMANGEL, CAROLINE  
; APPLICANT: DERBIN, CLAUDE  
; APPLICANT: PERRET, GERARD  
; APPLICANT: MAZIE, JEAN-CLAUDE  
; APPLICANT: PLOUET, JEAN  
; APPLICANT: VASSAY, ROGER  
; TITLE OF INVENTION: PEPTIDES BLOCKING VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF)-MEDIA  
; FILE REFERENCE: 205060US0  
; CURRENT APPLICATION NUMBER: US/10/342,371  
; CURRENT FILING DATE: 2003-01-15  
; PRIOR APPLICATION NUMBER: US/09/822,270  
; PRIOR FILING DATE: 2001-04-02  
; PRIOR APPLICATION NUMBER: US 60/193,396  
; PRIOR FILING DATE: 2000-03-31  
; NUMBER OF SEQ ID NOS: 17  
; SOFTWARE: PatentIn version 3.1  
; SEQ ID NO: 17  
; LENGTH: 110  
; TYPE: PRT  
; ORGANISM: ARTIFICIAL SEQUENCE  
; FEATURE:  
; OTHER INFORMATION: SYNTHETIC PEPTIDE  
US-10-342-371-17

Query Match 89.5%; Score 77; DB 12; Length 110;  
Best Local Similarity 100.0%; Pred. No. 2.5e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNITWQIMRIKPH 16  
|||||  
Db 72 EESNITWQIMRIKPH 86

RESULT 13  
US-10-392-931-10  
; Sequence 10, Application US/10392931  
; Publication No. US20030194643A1  
; GENERAL INFORMATION:  
; APPLICANT: SCHREINER, GEORGE F.  
; APPLICANT: JOHNSON, RICHARD J.  
; APPLICANT: SCIOS, INC.  
; TITLE OF INVENTION: TREATMENT OF MICROVASCULAR ANGIOPATHIES  
; FILE REFERENCE: SCIOS 003A  
; CURRENT APPLICATION NUMBER: US/10/392,931  
; CURRENT FILING DATE: 1999-09-09  
; PRIOR APPLICATION NUMBER: 60/099694  
; PRIOR FILING DATE: 1998-09-09  
; PRIOR APPLICATION NUMBER: 60/126406  
; PRIOR FILING DATE: 1999-03-26  
; PRIOR APPLICATION NUMBER: 60/126615  
; PRIOR FILING DATE: 1999-03-27  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO: 10  
; LENGTH: 110  
; TYPE: PRT  
; ORGANISM: Homo sapien  
US-10-392-931-10

Query Match 89.5%; Score 77; DB 12; Length 110;  
Best Local Similarity 100.0%; Pred. No. 2.5e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 EESNITWQIMRIKPH 16  
|||||  
DB 72 EESNITWQIMRIKPH 86

## RESULT 14

US-10-392-931-11  
; Sequence 11, Application US/10392931  
; Publication No. US20030194643A1  
; GENERAL INFORMATION:  
; APPLICANT: Schreiner, George F.  
; APPLICANT: Johnson, Richard J.  
; APPLICANT: Scios, Inc.  
; APPLICANT: University of Washington  
; TITLE OF INVENTION: TREATMENT OF MICROVASCULAR ANGIOPATHIES  
; FILE REFERENCE: SCIOS.003A  
; CURRENT APPLICATION NUMBER: US/10/392,931  
; CURRENT FILING DATE: 1999-09-09  
; PRIOR APPLICATION NUMBER: 60/099694  
; PRIOR FILING DATE: 1998-09-09  
; PRIOR APPLICATION NUMBER: 60/126406  
; PRIOR FILING DATE: 1999-03-26  
; PRIOR APPLICATION NUMBER: 60/126615  
; PRIOR FILING DATE: 1999-03-27  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 11  
; LENGTH: 110  
; TYPE: PRT  
; ORGANISM: Homo sapien  
US-10-392-931-11

Query Match 89.5%; Score 77; DB 12; Length 110;  
Best Local Similarity 100.0%; Pred. No. 2.5e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 EESNITWQIMRIKPH 16  
|||||  
DB 72 EESNITWQIMRIKPH 86

## RESULT 15

US-10-418-529-10  
; Sequence 10, Application US/10418529  
; Publication No. US20030220262A1  
; GENERAL INFORMATION:  
; APPLICANT: Schreiner, George F.  
; APPLICANT: Johnson, Richard J.  
; APPLICANT: Scios, Inc.  
; APPLICANT: University of Washington  
; TITLE OF INVENTION: TREATMENT OF ECLAMPSIA AND PREECLAMPSIA  
; FILE REFERENCE: SCIOS.003C1  
; CURRENT APPLICATION NUMBER: US/10/418,529  
; CURRENT FILING DATE: 2003-04-16  
; PRIOR APPLICATION NUMBER: 60/099694  
; PRIOR FILING DATE: 1998-09-09  
; PRIOR APPLICATION NUMBER: 60/126406  
; PRIOR FILING DATE: 1999-03-26  
; PRIOR APPLICATION NUMBER: 60/126615  
; PRIOR FILING DATE: 1999-03-27  
; PRIOR APPLICATION NUMBER: 09/392931  
; PRIOR FILING DATE: 1999-09-09  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 10  
; LENGTH: 110  
; TYPE: PRT  
; ORGANISM: Homo sapien  
US-10-418-529-10

Query Match 89.5%; Score 77; DB 12; Length 110;  
Best Local Similarity 100.0%; Pred. No. 2.5e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 EESNITWQIMRIKPH 16  
|||||  
DB 72 EESNITWQIMRIKPH 86

Search completed: January 30, 2004, 12:15:02  
Job time : 15.9609 secs



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:34:23 ; Search time 6.89331 Seconds  
(without alignments)  
223.249 Million cell updates/sec

Title: US-09-266-543-9  
Perfect score: 86  
Sequence: 1 CEESNITWQIRKPH 16

Scoring table: BLOSUM62  
Gapop 10.0, Gapext 0.5

Searched: 283308 seqs, 96168682 residues

Total number of hits satisfying chosen parameters: 283308

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :  
1: pir1:\*  
2: pir2:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	77	89.5	232	A41551	vascular endotheli
2	72	83.7	190	B44881	vascular endotheli
3	72	83.7	214	A44881	vascular endotheli
4	71	82.6	120	A33787	vascular endotheli
5	71	82.6	146	S57956	ovine vascular end
6	71	82.6	190	S52130	vascular endotheli
7	71	82.6	190	B40080	vascular endotheli
8	71	82.6	190	A35987	glioma-derived vas
9	53	61.6	128	I51295	vascular endotheli
10	46	53.5	1011	T13669	neurotensin - fr
11	45	52.3	158	A56125	placental growth f
12	45	52.3	1788	T29043	hypothetical prote
13	43	50.0	450	T38465	probable dolichyl-
14	42	48.8	865	S69044	hypothetical prote
15	41	47.7	149	A41236	placental growth f
16	41	47.7	455	D97217	glycosyltransferas
17	40	46.5	140	E82509	hypothetical prote
18	40	46.5	598	S28712	heat shock protein
19	40	46.5	674	AD2142	hypothetical prote
20	40	46.5	787	S09411	DNA translocase sp
21	40	46.5	1265	T47626	structural mainten
22	39	45.3	316	D69692	riboflavin kinase
23	39	45.3	598	S34203	heat shock protein
24	39	45.3	674	T28274	ORF MSY113 probabl
25	39	45.3	5232	A45086	HC-toxin synthetas
26	38	44.2	233	A80625	conserved hypotnet
27	38	44.2	253	C86325	T23W8.5 protein -
28	38	44.2	255	D69255	GDP-D-mannose dehy
29	38	44.2	261	AF1939	hypothetical prote

30	38	44.2	291	2	A69878	conserved hypotnet
31	38	44.2	401	1	C71310	conserved hypotnet
32	38	44.2	716	2	E90738	probably ATP-depen
33	38	44.2	716	2	G85588	probable ATP-depen
34	38	44.2	716	2	G64816	probable ATP-depen
35	38	44.2	863	2	A53034	gag polypotein -
36	38	44.2	889	2	T33422	hypothetical prote
37	38	44.2	1170	2	I45914	integrin alpha 2 s
38	38	44.2	1780	2	T17272	hypothetical prote
39	38	44.2	3066	1	J01661	genome polypotein
40	38	44.2	3066	1	J01662	genome polypotein
41	37	43.0	109	2	B72213	conserved hypotnet
42	37	43.0	155	1	M6ML43	E6 protein - human
43	37	43.0	171	2	H85661	hypothetical prote
44	37	43.0	171	2	G90801	hypothetical prote
45	37	43.0	342	2	B96813	hypothetical prote

## ALIGNMENTS

RESULT 1  
A41551  
vascular endothelial growth factor 206 precursor - human  
N:Alternate names: vascular permeability factor  
N:Contains: vascular endothelial growth factor 121 (VEGF 121); VEGF 165; VEGF 189; VEGF  
C:Species: Homo sapiens (man)  
C:Date: 28-Aug-1992 #sequence revision 28-Aug-1992 #text change 05-Nov-1999  
C:Accession: A41551; C41551; B41551; A40454; B40454; A40079; A40080; J01463; J01  
R:Houck, K.A.; Ferrara, N.; Winer, J.; Cachianes, G.; Li, B.; Leung, D.W.  
Mol. Endocrinol. 5, 1806-1814, 1991  
A>Title: The vascular endothelial growth factor family: identification of a fourth molec  
A:Reference number: A41551; MUID:92168017; PMID:1791831  
A:Accession: A41551  
A:Molecule type: mRNA  
A:Residues: 1-232 <HOU1>  
A:Cross-references: GB:S85192; NID:G246155; PID:G246156  
A:Accession: B41551  
A:Residues: 1-140, 'N', 183-232 <HOU2>  
A:Molecule type: mRNA  
A:Status: nucleic acid sequence not shown  
A:Molecule type: mRNA  
A:Residues: 1-141, 227-232 <HOU>  
R:Richter, E.; Mitchell, R.; Hartman, T.; Silva, M.; Gospodarowicz, D.; Fiddes, J.C.; Ab  
J. Biol. Chem. 266, 11947-11954, 1991  
A>Title: The human gene for vascular endothelial growth factor. Multiple protein forms a  
A:Reference number: A40454; MUID:91268072; PMID:1711045  
A:Accession: A40454  
A:Molecule type: DNA  
A:Residues: 1-165, 183-232 <HOU>  
A:Residues: 1-141, 227-232 <HOU>  
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB  
A:Accession: B40454  
A:Molecule type: DNA  
A:Residues: 1-141, 227-232 <HOU>  
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB  
A:Accession: C40454  
A:Molecule type: DNA  
A:Residues: 1-141, 227-232 <HOU>  
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB  
R:Keck, P.J.; Hauser, S.D.; Krivi, G.; Sanzo, K.; Warren, T.; Feder, J.; Connolly, D.T.  
Science 246, 1309-1312, 1989  
A>Title: Vascular permeability factor: an endothelial cell mitogen related to PDGF.  
A:Reference number: A40079; MUID:90069609; PMID:2479987  
A:Accession: A40079  
A:Status: not compared with conceptual translation  
A:Molecule type: mRNA  
A:Residues: 1-165, 183-232 <KEC>  
A:Cross-references: NID:G340300; PID:AAA36807.1; PID:G340301  
R:Leung, D.W.; Cachianes, G.; Huang, W.J.; Goeddel, D.V.; Ferrara, N.  
Science 246, 1306-1309, 1989  
A>Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.

A:Reference number: A40080; MUID:90069608; PMID:2479986  
A:Accession: A40080  
A:Status: not compared with conceptual translation  
A:Molecule type: mRNA  
A:Residues: 1-140, 'N', 183-232 <EB>  
A:Cross-references: GB:M52977; NID:9181970; PIDN:AAA5789.1; PID:9181971  
R:Weinberg, K.; Marne, D.; Welch, H.A.  
Biochem. Biophys. Res. Commun. 183, 1167-1174, 1992  
A:Title: AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial  
A:Reference number: J01463; MUID:92231879; PMID:1567395  
A:Accession: J01463  
A:Molecule type: mRNA  
A:Residues: 1-140, 'N', 183-232 <WEI>  
A:Cross-references: EMBL:X62568; NID:937658; PIDN:CAA44447.1; PID:937659  
A:Experimental source: AIDS-Kaposi's sarcoma cell  
A:Accession: J01464  
A:Molecule type: mRNA  
A:Residues: 1-140, 'N', 227-232 <WE2>  
A:Experimental source: AIDS-Kaposi's sarcoma cell  
R:Connolly, D.T.; Olander, J.V.; Heuvelman, D.; Nelson, R.; Monsell, R.; Siegel, N.; Hay  
J. Biol. Chem. 264, 20017-20024, 1989  
A:Title: Human vascular permeability factor. Isolation from U937 cells.  
A:Reference number: A34492; MUID:90062112; PMID:2584205  
A:Accession: A34492  
A:Molecule type: protein  
A:Residues: 27-36/43-49, 'R', '72-76', 'Q', '78-81', '59-71' <CON>  
A:Comment: The most common of several alternatively spliced forms is VEGF 165.  
C:Genetics:  
A:Gene: GDB:VEGF  
A:Cross-references: GDB:132244; OMIM:192240  
A:Map position: 6p21-6p12  
C:Function:  
A:Description: Promotes fluid and protein leakage from blood vessels  
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; extracellular pro  
F:1-232/Product: vascular endothelial growth factor 206 precursor #status predicted <Y2  
F:1-165, 183-232/Product: vascular endothelial growth factor 169 precursor #status predic  
F:1-141, 227-232/Product: vascular endothelial growth factor 121 precursor #status predic  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:101/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 89.5%; Score 77; DB 2; Length 232;  
Best Local Similarity 100.0%; Pred. No. 1.8e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 2 ESNITMOIRIKPH 16  
|||||  
Db 98 ESNITMOIRIKPH 112

RESULT 2  
B44881  
vascular endothelial growth factor-1 precursor - mouse  
C:Species: Mus musculus (house mouse)  
C:Date: 03-Feb-1994 #sequence revision 03-Feb-1994 #text\_change 05-Nov-1999  
C:Accession: B44881; A43351; A61029  
R:Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.  
Development 114, 521-532, 1992  
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis  
A:Reference number: A44881; MUID:92274860; PMID:1592003  
A:Accession: B44881  
A:Molecule type: mRNA  
A:Residues: 1-190 <BRE>  
A:Cross-references: GB:S38083; NID:9249858; PIDN:AA82253.1; PID:9249859  
A:Experimental source: embryo  
A:Note: Sequence extracted from NCBI backbone (NCBIN:107622, NCBI:107623)  
R:Clafiey, K.P.; Wilkison, W.O.; Spiegelman, B.M.  
J. Biol. Chem. 267, 16317-16322, 1992  
A:Title: Vascular endothelial growth factor. Regulation by cell differentiation and acti  
A:Reference number: A43351; MUID:92255593; PMID:1644816  
A:Accession: A43351  
A:Molecule type: mRNA  
A:Residues: 1-116, 'ER', 119-190 <CLA>  
A:Cross-references: GB:M95200; NID:9202350; PIDN:AAA40547.1; PID:9202351

A:Note: sequence extracted from NCBI backbone (NCBIN:110665, NCBI:110675)  
R:Rosenthal, R.A.; Megyesi, J.F.; Hensel, W.J.; Ferrara, N.; Folkman, J.  
Growth Factors 4, 53-59, 1990  
A:Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelial g  
A:Reference number: A61029; MUID:91197543; PMID:2085441  
A:Accession: A61029  
A:Molecule type: protein  
A:Residues: 27-38 <ROS>  
A:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein; mlt

Query Match 83.7%; Score 72; DB 2; Length 190;  
Best Local Similarity 100.0%; Pred. No. 1.2e-05;  
Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 3 ESNITMOIRIKPH 16  
|||||  
Db 98 ESNITMOIRIKPH 111

RESULT 3  
A44881  
vascular endothelial growth factor-3 precursor - mouse  
M:Contains: vascular endothelial growth factor-2; vascular permeability factor  
C:Species: Mus musculus (house mouse)  
C:Date: 03-Feb-1994 #sequence revision 03-Feb-1994 #text\_change 08-Oct-1999  
C:Accession: A44881; A60932; S52136  
R:Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.  
Development 114, 521-532, 1992  
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis  
A:Reference number: A44881; MUID:92274860; PMID:1592003  
A:Accession: A44881  
A:Molecule type: mRNA  
A:Residues: 1-214 <BRE>  
A:Cross-references: GB:S37052; NID:9249856; PIDN:AA82252.1; PID:9249857  
A:Experimental source: embryo  
A:Note: Sequence extracted from NCBI backbone (NCBIN:104677, NCBI:104678)  
A:Accession: C44881  
A:Molecule type: mRNA  
A:Residues: 1-140, 209-214 <BR2>  
A:Cross-references: GB:S38100; NID:9249860; PIDN:AA82254.1; PID:9249861  
A:Note: Sequence extracted from NCBI backbone (NCBIN:107624, NCBI:107625)  
R:Clafiey, K.P.; Wilkison, W.O.; Spiegelman, B.M.  
J. Biol. Chem. 267, 16317-16322, 1992  
A:Title: Vascular permeability factor: a tumor-derived polypeptide that induces endothel  
A:Reference number: A60932; MUID:91079755; PMID:2258694  
A:Accession: A60932  
A:Molecule type: protein  
A:Residues: 27-33 <CLA>  
R:Sugihara, T.; Kaul, S.C.; Mileui, Y.; Wadhwa, R.  
Biochim. Biophys. Acta 1224, 365-370, 1994  
A:Title: Enhanced expression of multiple forms of VEGF is associated with spontaneous im  
A:Reference number: S52136; MUID:95101726; PMID:7803491  
A:Accession: S52136  
A:Status: preliminary  
A:Molecule type: protein  
A:Residues: 27-46 <SUG>  
C:Comment: Homodimers could be demonstrated for recombinant VEGF-2 but not VEGF-3.  
C:Keywords: alternative splicing; angiogenesis; disulfide bond; glycoprotein; homodimer;  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:27-214/Product: vascular endothelial growth factor-3 #status experimental <MAT>

Query Match 83.7%; Score 72; DB 2; Length 214;  
Best Local Similarity 100.0%; Pred. No. 1.4e-05;  
Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 3 ESNITMOIRIKPH 16  
|||||  
Db 98 ESNITMOIRIKPH 111

RESULT 4  
A33787  
vascular endothelial growth factor (version 1) - bovine

C:Species: Bos primigenius taurus (cattle)  
 C:Date: 16-Mar-1990 #sequence\_revision 16-Mar-1990 #text\_change 05-Nov-1999  
 C:Accession: A33787  
 R:Title: E. Gospodarowicz, D. Mitchell, R. Silva, M. Schilling, J. Lau, K. Crist  
 Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989  
 A:Title: Vascular endothelial growth factor: a new member of the platelet-derived growth  
 A:Reference number: A33787; MUID:90121225; PMID:2610687  
 A:Accession: A33787  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-120 <TIS>  
 A:Cross-references: GB:M33750; NID:G163810; PIDN:AAA30805.1; PID:G163811  
 C:Keywords: alternative splicing

Query Match 82.6%; Score 71; DB 2; Length 120;  
 Best Local Similarity 93.3%; Pred. No. 1.2e-05;  
 Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 EESNITMOIMRIKPH 16  
 |||  
 DB 71 EEFNITMOIMRIKPH 85

RESULT 5  
 S57956  
 ovine vascular endothelial growth factor - sheep  
 C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
 C:Date: 13-Jan-1996 #sequence\_revision 01-Mar-1996 #text\_change 05-Nov-1999  
 C:Accession: S57956  
 R:Title: D.A. Dal, Y. Li, J. Jones, S.C. Moor, R.M.  
 submitted to the EMBL Data Library, July 1995  
 A:Reference number: S57956  
 A:Accession: S57956  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-146 <RED>  
 A:Cross-references: EMBL:X89506; NID:G899350; PIDN:CAA61677.1; PID:G899351

Query Match 82.6%; Score 71; DB 2; Length 146;  
 Best Local Similarity 93.3%; Pred. No. 1.4e-05;  
 Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 EESNITMOIMRIKPH 16  
 |||  
 DB 97 EEFNITMOIMRIKPH 111

RESULT 6  
 S52130  
 vascular endothelial growth factor - pig  
 C:Species: Sus scrofa domestica (domestic pig)  
 C:Date: 14-Jul-1995 #sequence\_revision 21-Jul-1995 #text\_change 05-Nov-1999  
 C:Accession: S52130  
 R:Sharma, H.S.; Tang, Z.H.; Gho, B.C.G.; Verdouw, P.D.  
 Biochim. Biophys. Acta 1260, 235-238, 1995  
 A:Title: Nucleotide sequence and expression of the porcine vascular endothelial growth f  
 A:Reference number: S52130; MUID:95143284; PMID:7841203  
 A:Accession: S52130  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-190 <SHA>  
 A:Cross-references: GB:X81380; NID:G587559; PIDN:CAA57143.1; PID:G587560

Query Match 82.6%; Score 71; DB 2; Length 190;  
 Best Local Similarity 93.3%; Pred. No. 1.9e-05;  
 Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 EESNITMOIMRIKPH 16  
 |||  
 DB 97 EEFNITMOIMRIKPH 111

RESULT 7

B40080  
 vascular endothelial growth factor precursor (version 2) - bovine  
 C:Species: Bos primigenius taurus (cattle)  
 C:Date: 30-Jun-1992 #sequence\_revision 30-Jun-1992 #text\_change 05-Nov-1999  
 C:Accession: B40080; B33787; A33255  
 R:Leung, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.  
 Science 246, 1306-1309, 1989  
 A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.  
 A:Reference number: A40080; MUID:90069608; PMID:2479986  
 A:Accession: B40080  
 A:Molecule type: mRNA  
 A:Residues: 1-190 <LEU>  
 A:Cross-references: GB:M32976; NID:G163006; PIDN:AAA30502.1; PID:G163007  
 R:Title: E. Gospodarowicz, D. Mitchell, R. Silva, M. Schilling, J. Lau, K. Crist  
 Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989  
 A:Title: Vascular endothelial growth factor: a new member of the platelet-derived growth  
 A:Reference number: A33787; MUID:90121225; PMID:2610687  
 A:Accession: B33787  
 A:Molecule type: mRNA  
 A:Residues: 27-190 <TIS>  
 A:Cross-references: GB:M31836; NID:G163808; PIDN:AAA30804.1; PID:G163809  
 R:Ferrara, N.; Henzel, W.J.  
 Biochem. Biophys. Res. Commun. 161, 851-858, 1989  
 A:Title: Plutitary follicular cells secrete a novel heparin-binding growth factor specif  
 A:Reference number: A33255; MUID:89286596; PMID:2735925  
 A:Accession: A33255  
 A:Molecule type: protein  
 A:Residues: 27-31 <PER>  
 C:Keywords: alternative splicing; glycoprotein  
 F:1-26/Domain: signal sequence #status predicted <SIG>  
 F:27-190/Product: vascular endothelial growth factor #status predicted <MAT>  
 F:100/Binding site: carbohydrate (asn) (covalent) #status predicted

Query Match 82.6%; Score 71; DB 2; Length 190;  
 Best Local Similarity 93.3%; Pred. No. 1.9e-05;  
 Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 EESNITMOIMRIKPH 16  
 |||  
 DB 97 EEFNITMOIMRIKPH 111

RESULT 8  
 A35987  
 glioma-derived vascular endothelial cell growth factor - rat  
 C:Species: Rattus norvegicus (Norway rat)  
 C:Date: 16-Nov-1990 #sequence\_revision 16-Nov-1990 #text\_change 05-Nov-1999  
 C:Accession: A35987  
 R:Conn, G.; Bayne, M.L.; Soderman, D.D.; Kwok, P.W.; Sullivan, K.A.; Palfey, T.M.; Hope,  
 Proc. Natl. Acad. Sci. U.S.A. 87, 2628-2632, 1990  
 A:Title: Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is ho  
 A:Reference number: A35987; MUID:90207249; PMID:2320579  
 A:Accession: A35987  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-190 <CON>  
 A:Cross-references: GB:M2167; NID:G204287; PIDN:AAA41211.1; PID:G204288

Query Match 82.6%; Score 71; DB 2; Length 190;  
 Best Local Similarity 92.9%; Pred. No. 1.9e-05;  
 Matches 13; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 3 EESNITMOIMRIKPH 16  
 |||  
 DB 98 EEFNITMOIMRIKPH 111

RESULT 9  
 I51295  
 vascular endothelial growth factor - quail (fragment)  
 C:Species: Phasianidae gen. sp. (quail)  
 C:Date: 13-Sep-1996 #sequence\_revision 13-Sep-1996 #text\_change 28-Feb-1997  
 C:Accession: I51295

R:Flamme, I.; Breier, G.; Ritsau, W.  
 Dev. Biol. 169, 699-712, 1995  
 A>Title: Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (Flk-1) are expressed in human embryonic endothelial cells  
 A:Accession: 151295  
 A:Status: Preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: DNA  
 A:Residues: 1-128 <FLA>  
 A:Cross-references: GB:S78343; NID:G999147; PID:G999148  
 C:Genetics:  
 A:Gene: VEGF

Query Match 61.6%; Score 53; DB 2; Length 128;  
 Best Local Similarity 75.0%; Pred. No. 0.026;  
 Matches 9; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

OY: 5 NITWQIMRIKPH 16  
 :||:|||||  
 Db 42 NVTMEIARIKPH 53

## RESULT 10

T13669  
 neuromusculin - fruit fly (Drosophila melanogaster)  
 C:Species: Drosophila melanogaster  
 C>Date: 13-Aug-1999 #sequence\_revision 13-Aug-1999 #text\_change 17-Nov-2000  
 C:Accession: T13669  
 R:Kania, A.; Han, P.L.; Kim, Y.T.; Bellen, H.  
 Neuron 11, 673-687, 1993  
 A>Title: Neuromusculin, a Drosophila gene expressed in peripheral neuronal precursors at the neuromuscular junction  
 A:Reference number: Z17697; MUID:94000831; PMID:8398154  
 A:Accession: T13669  
 A:Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: mRNA  
 A:Residues: 1-1011 <KAN>  
 A:Cross-references: EMBL:L23146; NID:G385073; PID:G385074; PIDN:AAA03750.1  
 C:Genetics:  
 A:Gene: nrm  
 A:Cross-references: FlyBase:FBgn0005629

Query Match 53.5%; Score 46; DB 2; Length 1011;  
 Best Local Similarity 60.0%; Pred. No. 4.5;  
 Matches 9; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

OY: 1 CEESNITWQIMRIKPH 15  
 :||:|||||  
 Db 347 CEANIVLQINNEKP 361

## RESULT 11

A56125  
 placental growth factor precursor - rat  
 C:Species: Rattus norvegicus (Norway rat)  
 C>Date: 19-Oct-1995 #sequence\_revision 19-Oct-1995 #text\_change 05-Nov-1999  
 C:Accession: A56125  
 R:Disalvo, J.; Bayne, M.L.; Com, G.; Kwok, P.W.; Tivedi, P.G.; Soderman, D.D.; Palisi, J. Biol. Chem. 270, 7717-7723, 1995  
 A>Title: Purification and characterization of a naturally occurring vascular endothelial A:Reference number: A56125; MUID:95221439; PMID:7706320  
 A:Accession: A56125  
 A:Status: preliminary; not compared with conceptual translation  
 A:Molecule type: mRNA  
 A:Residues: 1-158 <DIAS>  
 A:Cross-references: GB:L40030; NID:G1263413; PIDN:AAA97426.1; PID:G1263414  
 C:Keywords: glycoprotein

Query Match 52.3%; Score 45; DB 2; Length 158;  
 Best Local Similarity 61.5%; Pred. No. 0.99;  
 Matches 8; Conservative 4; Mismatches 1; Indels 0; Gaps 0;

OY: 4 SNITWQIMRIKPH 16  
 :||:|||||  
 Db 96 ANITWQIMRIKPH 108

## RESULT 12

T29043  
 hypothetical protein B0228.2 - Caenorhabditis elegans  
 C:Species: Caenorhabditis elegans  
 C>Date: 15-Oct-1999 #sequence\_revision 15-Oct-1999 #text\_change 15-Oct-1999  
 C:Accession: T29043  
 R:Leimbach, D.  
 submitted to the EMBL Data Library, March 1995  
 A:Description: The sequence of C. elegans cosmid B0228.  
 A:Reference number: Z18324  
 A:Accession: T29043  
 A:Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: DNA  
 A:Residues: 1-1788 <LEI>  
 A:Cross-references: EMBL:U23168; PIDN:ACG38806.1; CESP:B0228.2  
 A:Experimental source: strain Bristol N2  
 C:Genetics:  
 A:Gene: CESP:B0228.2  
 A:introns: 1456/2; 1482/3; 1516/2; 1551/3; 1595/3; 1646/1; 1671/1; 1716/2; 1749/3

Query Match 52.3%; Score 45; DB 2; Length 1788;  
 Best Local Similarity 50.0%; Pred. No. 13;  
 Matches 8; Conservative 3; Mismatches 5; Indels 0; Gaps 0;

OY: 1 CEESNITWQIMRIKPH 16  
 :||:|||||  
 Db 1067 CEESTITKVNRIKPH 1082

## RESULT 13

T38465  
 probable dolichyl-diphosphooligosaccharide-protein glycotransferase (EC 2.4.1.119) alpha.  
 C:Species: Schizosaccharomyces pombe  
 C>Date: 03-Dec-1999 #sequence\_revision 03-Dec-1999 #text\_change 03-Jun-2002  
 C:Accession: T38465  
 R:Harris, D.; McDonald, S.; Barrett, B.G.; Rajandream, M.A.; Walsh, S.V.  
 submitted to the EMBL Data Library, February 1996  
 A:Reference number: Z21794  
 A:Accession: T38465  
 A:Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: DNA  
 A:Residues: 1-450 <HAR>  
 A:Cross-references: EMBL:Z69368; PIDN:CAA93296.1; GSPDB:GN00066; SPDB:SPAC27F1.07  
 A:Experimental source: strain 972h-; cosmid c27f1  
 C:Genetics:  
 A:Gene: SPDB:SPAC27F1.07  
 A:Map position: 1  
 C:Keywords: glycosyltransferase; hexosyltransferase

Query Match 50.0%; Score 43; DB 2; Length 450;  
 Best Local Similarity 53.3%; Pred. No. 7;  
 Matches 8; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

OY: 2 EESNITWQIMRIKPH 16  
 :||:|||||  
 Db 287 EVGNITTSNMRVBP 301

## RESULT 14

S69044  
 hypothetical protein YPL14C - yeast (Saccharomyces cerevisiae)  
 N:Alternate names: hypothetical protein LPI5  
 C:Species: Saccharomyces cerevisiae  
 C>Date: 22-Aug-1996 #sequence\_revision 06-Sep-1996 #text\_change 19-Apr-2002  
 C:Accession: S69044  
 R:Hall, J.; DePaulo, T.; Ahmed, A.; Bussey, H.; Fortin, N.; Friessen, J.D.; Storms, R.K.; submitted to the EMBL Data Library, December 1995  
 A:Description: The sequence of Saccharomyces cerevisiae chromosome XVI left arm.  
 A:Reference number: S69040  
 A:Accession: S69044  
 A:Molecule type: DNA



A:Residues: 1-865 <HAL>  
 A:Cross-references: EMBL:U43703; NID:g1244769; PIDN:AAB68219.1; PID:g1244774; MIPS:YPL14  
 C:Genetics:  
 A:Cross-references: SGD:S0006062  
 A:Map position: 16L  
 A>Note: YPL141c  
 C:Superfamily: unassigned Ser/Thr or Tyr-specific protein kinases; protein kinase homolog  
 C:Keywords: ATP  
 F:39-313/Domain: protein kinase ATP-binding motif  
 F:47-55/Region: protein kinase ATP-binding motif

Query Match 48.8%; Score 42; DB 2; Length 865;  
 Best Local Similarity 53.3%; Pred. No. 21;  
 Matches 8; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

QY 2 EESNTMQIMRIKPH 16  
 |||:|:|:|:  
 Db 491 EESNTMQIMRIKPH 505

## RESULT 15

A41236  
 placental growth factor precursor - human  
 C:Species: Homo sapiens (man)  
 C:Date: 19-Jun-1992 #sequence\_revision 19-Jun-1992 #text\_change 05-Nov-1999  
 C:Accession: A41236  
 R:Magliore, D.; Guerriero, V.; Vigioreto, G.; Dell'I-Bovl, P.; Persico, M.G.  
 Proc. Natl. Acad. Sci. U.S.A. 88, 9267-9271, 1991  
 A>Title: Isolation of a human placenta cDNA coding for a protein related to the vascular  
 A:Reference number: A41236; MUID:92021031; PMID:1924389  
 A:Accession: A41236  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-149 <MAG>  
 A:Cross-references: GB:X54936; NID:g35521; PIDN:CAA38698.1; PID:g35522  
 C:Genetics:  
 A:Gene: GDB:PGF  
 A:Cross-references: GDB:134676; OMIM:601121  
 A:Map position: 14q24-14q31

Query Match 47.7%; Score 41; DB 2; Length 149;  
 Best Local Similarity 46.2%; Pred. No. 5.1;  
 Matches 6; Conservative 6; Mismatches 1; Indels 0; Gaps 0;

QY 2 EESNTMQIMRIKPH 14  
 |:|:|:|:|:  
 Db 98 ETANVTMQLKIR 110

Search completed: January 30, 2004, 11:46:18  
 Job time : 7.89231 secs



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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:27:48 ; Search time 3.69231 Seconds

(without alignments)  
203.782 Million cell updates/sec

Title: US-09-266-543-9

Perfect score: 86

Sequence: 1 CEESNITQWIRKPH 16

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 127863 seqs, 47026705 residues

Total number of hits satisfying chosen parameters: 127863

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : SwissProt\_41.\*

Pred. No. is the number of results predicted by chance to have a

score greater than or equal to the score of the result being printed,

and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	77	89.5	232	1	VEGA_HUMAN
2	72	83.7	214	1	VEGA_MOUSE
3	71	82.6	146	1	VEGA_SHEEP
4	71	82.6	164	1	VEGA_CAVPO
5	71	82.6	190	1	VEGA_BOVIN
6	71	82.6	190	1	VEGA_MESAU
7	71	82.6	190	1	VEGA_PIG
8	71	82.6	214	1	VEGA_CANPA
9	71	82.6	214	1	VEGA_RAT
10	66	76.7	190	1	VEGA_HORSE
11	53	61.6	216	1	VEGA_CHICK
12	45	52.3	158	1	PIGF_MOUSE
13	45	52.3	158	1	PIGF_RAT
14	44	51.2	1324	1	IRG2_HUMAN
15	43	50.0	450	1	OSTA_SCHPO
16	41	47.7	221	1	PIGF_HUMAN
17	40	46.5	598	1	HSTL_SBYV
18	40	46.5	787	1	SP3E_BACSU
19	40	46.5	880	1	SV4_BUCBP
20	39	45.3	149	1	PIGF_BOVIN
21	39	45.3	316	1	RIBC_BACSU
22	39	45.3	674	1	EPF1_MSEPV
23	39	45.3	1122	1	DSG2_MOUSE
24	39	45.3	5217	1	HSTL_COCCA
25	38	44.2	300	1	HAP2_XLULA
26	38	44.2	401	1	THI1_TREPA
27	38	44.2	716	1	DING_ECOLI
28	38	44.2	1170	1	ITGA2_BOVIN
29	38	44.2	3066	1	POIG_SBMVG
30	38	44.2	3066	1	POIG_SBMVN
31	37	43.0	155	1	VE6_HPV43
32	37	43.0	609	1	YKD6_CAEEL
33	37	43.0	3097	1	CADN_DROME

34	36.5	42.4	235	1	PYRH_UREPA
35	36	41.9	149	1	Y919_MERTJA
36	36	41.9	246	1	Y495_SYNY3
37	36	41.9	303	1	BYST_MOUSE
38	36	41.9	359	1	MTD_MEDSA
39	36	41.9	401	1	ASSY_XYLEFA
40	36	41.9	401	1	ASSY_XYLEFT
41	36	41.9	699	1	GALX_YEAST
42	36	41.9	838	1	YKRA_CAEEL
43	36	41.9	968	1	Y682_MERTJA
44	36	41.9	1038	1	BGAL_ALTHA
45	36	41.9	1126	1	V125_AMYLE

## ALIGNMENTS

RESULT 1  
ID VEGA\_HUMAN STANDARD; PRT; 232 AA.  
AC P15692; O60720; O75875; Q16889; Q96NW5; Q9H1W8; Q9H1W9; Q9UH58;  
OX NCBI\_TaxID=9606;  
RN [1] SEQUENCE FROM N.A. (ISOFORMS VEGF189 AND VEGF165).  
RX MEDLINE=90069608; PubMed=2479986;  
RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;  
RT "Vascular endothelial growth factor is a secreted angiogenic  
mitogen.";  
RL Science 246:1306-1309(1989).  
RN [2] SEQUENCE FROM N.A. (ISOFORM VEGF189), AND PARTIAL SEQUENCE.  
RX MEDLINE=92168072; PubMed=1711045;  
RA Tischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D.,  
RA Fiddes J.C., Abraham J.A.;  
RT "The human gene for vascular endothelial growth factor. Multiple  
protein forms are encoded through alternative exon splicing.";  
RL J. Biol. Chem. 266:11947-11954(1991).  
RN [4] SEQUENCE FROM N.A. (ISOFORM VEGF206).  
RX MEDLINE=92168017; PubMed=1791831;  
RA Houck K.A., Ferrara N., Winer J., Cachianes G., Li B., Leung D.W.;  
RT "The vascular endothelial growth factor family: identification of a  
fourth molecular species and characterization of alternative splicing  
of RNA.";  
RL Mol. Endocrinol. 5:1806-1814(1991).  
RN [5] SEQUENCE FROM N.A. (ISOFORM VEGF165).  
RX MEDLINE=92231879; PubMed=1567395;  
RA Weindel K., Marne D., Welch H.A.;  
RT "AIDS-associated Kaposi's sarcoma cells in culture express vascular  
endothelial growth factor.";  
RL Biochem. Biophys. Res. Commun. 183:1167-1174(1992).  
RN [6] SEQUENCE FROM N.A. (ISOFORM VEGF145).  
RX MEDLINE=97207275; PubMed=9054410;

RA Poltorak Z., Cohen T., Sivan R., Kandellis Y., Spira G., Vlodavsky I.,  
 RA Keshet E., Neufeld G.;  
 RT "VEGF145, a secreted vascular endothelial growth factor isoform that  
 RT binds to extracellular matrix.";   
 RL J. Biol. Chem. 272:7151-7158 (1997).  
 RN (7)  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF183).  
 RC TISSUE=Kidney;  
 RX MEDLINE=99096474; PubMed=9878851;  
 RA Let J., Jiang A., Pei D.;  
 RT "Identification and characterization of a new splicing variant of  
 RT vascular endothelial growth factor: VEGF183.";   
 RL Biochim. Biophys. Acta 1443:400-406 (1998).  
 RN (8)  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RC TISSUE=Breast;  
 RX MEDLINE=99119755; PubMed=9450968;  
 RA Claffey K.P., Shih S.-C., Mullen A., Dziennis S., Cusick J.L.,  
 RA Abrams K.R., Lee S.W., Detmar M.;  
 RT "Identification of a human VPF/VEGF 3' untranslated region mediating  
 RT hypoxia-induced mRNA stability.";   
 RL Mol. Biol. Cell 9:469-481 (1998).  
 RN (9)  
 RP SEQUENCE OF 114-209 FROM N.A. (ISOFORM VEGF183).  
 RC TISSUE=Retina;  
 RX MEDLINE=99165303; PubMed=10067980;  
 RA Jia J., Yue Y., Agarwal N., Roque R.S.;  
 RT "Human Muller cells express VEGF183, a novel spliced variant of  
 RT vascular endothelial growth factor.";   
 RL Invest. Ophthalmol. Vis. Sci. 40:752-759 (1999).  
 RN (10)  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
 RC TISSUE=Hemangioidenoma;  
 RX MEDLINE=99165303; PubMed=10067980;  
 RA Murata H., Fukushima J., Hattori S., Okuda K., Yanagi H.;  
 RT "Human CDNA for the vascular endothelial growth factor isoform  
 RT VEGF165.";   
 RL Submitted (DEC-1998) to the EMBL/Genbank/DBJ databases.  
 RN (11)  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF148).  
 RC TISSUE=Renal glomerulus;  
 RX MEDLINE=99394945; PubMed=10464055;  
 RA Whittle C.J., Gillespie K.M., Harrison R., Mathieson P.W.,  
 RA Harper S.J.;  
 RT "Heterogeneous vascular endothelial growth factor (VEGF) isoform mRNA  
 RT and receptor mRNA expression in human glomeruli, and the  
 RT identification of VEGF148 mRNA, a novel truncated splice variant.";   
 RL Clin. Sci. 97:303-312 (1999).  
 RN (12)  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF121).  
 RA Sato J.D., Whitney R.G.;  
 RT "Human CDNA for vascular endothelial growth factor isoform VEGF121.";   
 RL Submitted (DEC-1999) to the EMBL/Genbank/DBJ databases.  
 RN (13)  
 RP SEQUENCE FROM N.A.  
 RA Williams S.;  
 RL Submitted (DEC-2000) to the EMBL/Genbank/DBJ databases.  
 RN (14)  
 RP SEQUENCE OF 23-232 FROM N.A. (VEGF165).  
 RA Rietkerk M.J., Armet T.Z., Carrington D.P., Chung M.-W., Lee K.L.,  
 RA Poel C.L., Toch E.J., Yi Q., Nickerson D.A.;  
 RT Submitted (OCT-2001) to the EMBL/Genbank/DBJ databases.  
 RN (15)  
 RP PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.  
 RX MEDLINE=90062112; PubMed=2584205;  
 RA Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monseil R.,  
 RA Siegel N., Haymore B.L., Leimgruber R., Feder J.;  
 RT "Human vascular permeability factor. Isolation from U937 cells.";   
 RL J. Biol. Chem. 264:20017-20024 (1989).  
 RN (16)  
 RP SEQUENCE OF 27-41.  
 RX MEDLINE=93145946; PubMed=7678805;  
 RA Piebich B.L., Jaeger B., Schoellmann C., Weindel K., Wiltung J.,  
 RA Koehn G., Marne D., Hug H., Weich H.A.;

RT "Synthesis and assembly of functionally active human vascular  
 RT endothelial growth factor homodimers in insect cells.";   
 RL Eur. J. Biochem. 211:19-26 (1993).  
 RN (17)  
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.  
 RX MEDLINE=97352774; PubMed=9207067;  
 RA Muller Y.A., Li B., Christinger H.W., Welle J.A., Cunningham B.C.,  
 RA de Vos A.M.;  
 RT "Vascular endothelial growth factor: crystal structure and functional  
 RT mapping of the kinase domain receptor binding site.";   
 RL Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197 (1997).  
 RN (18)  
 RP X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.  
 RX MEDLINE=98035455; PubMed=9351807;  
 RA Muller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;  
 RT "The crystal structure of vascular endothelial growth factor (VEGF)  
 RT refined to 1.93-A resolution: multiple copy flexibility and receptor  
 RT binding.";   
 RL Structure 5:1325-1338 (1997).  
 RN (19)  
 RP X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.  
 RX MEDLINE=99119204; PubMed=9922142;  
 RA Wisemann C., Christinger H.W., Cochran A.G., Cunningham B.C.,  
 RA Fairbrother W.J., Keenan C.J., Meng G., de Vos A.M.;  
 RT "Crystal structure of the complex between VEGF and a receptor-blocking  
 RT peptide.";   
 RL Biochemistry 37:17765-17772 (1998).  
 RN (20)  
 RP STRUCTURE BY NMR OF 137-215.  
 RX MEDLINE=9747915; PubMed=9336848;  
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,  
 RA Starovasnik M.A.;  
 RT "1H, 13C, and 15N backbone assignment and secondary structure of the  
 RT receptor-binding domain of vascular endothelial growth factor.";   
 RL Protein Sci. 6:2250-2260 (1997).  
 RN (21)  
 RP STRUCTURE BY NMR OF 137-215.  
 RX MEDLINE=98298440; PubMed=9634701;  
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,  
 RA Starovasnik M.A.;  
 RT "Solution structure of the heparin-binding domain of vascular  
 RT endothelial growth factor.";   
 RL Structure 6:637-648 (1998).  
 RN (22)  
 RP FUNCTION.  
 RX MEDLINE=21320570; PubMed=11427521;  
 RA Murphy J.F., Fitzgerald D.J.;  
 RT "Vascular endothelial growth factor induces cyclooxygenase-dependent  
 RT proliferation of endothelial cells via the VEGF-2 receptor.";   
 RL FASEB J. 15:1667-1669 (2001).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin. Neuropilin-1 binds isoforms VEGF-165 and VEGF-145.  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: VEGF121 is acidic and freely secreted.  
 CC VEGF165 is more basic, has heparin-binding properties and,  
 CC although a significant proportion remains cell-associated, most is  
 CC freely secreted. VEGF189 is very basic; it is cell-associated  
 CC after secretion and is bound avidly by heparin and the  
 CC extracellular matrix, although it may be released as a soluble  
 CC form by heparin, heparinase or plasmin.  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event-Alternative splicing; Named isoforms=7;  
 CC Comment=Experimental confirmation may be lacking for some  
 CC isoforms;  
 CC Name=VEGF206;  
 CC IsoId=P15692-1; Sequence=Displayed;  
 CC Name=VEGF189;  
 CC IsoId=P15692-2; Sequence=VSP\_004622;

Query Match 89.5%; Score 77; DB 1; Length 232;  
 Best Local Similarity 100.0%; Pred. No. 3.6e-07;  
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 ESNITMOIMRIKPH 16  
 |||||  
 98 ESNITMOIMRIKPH 112

Db 98 ESNITMOIMRIKPH 112

RESULT 2  
 ID VEGA\_MOUSE STANDARD; PRT: 214 AA.

AC 000731;  
 DT 01-APR-1993 (Rel. 25, Created)  
 DT 01-OCT-1996 (Rel. 34, Last sequence update)  
 DT 15-SEP-2003 (Rel. 42, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Mus musculus (Mouse).  
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
 OX NCBI\_TaxId=10090;  
 RP SEQUENCE FROM N.A. (ISORFMS VEGF-1; VEGF-2 AND VEGF-3).  
 RA MEDLINE=92274860; PubMed=1592003;  
 RX Breier G., Albrecht U., Sterrer S., Risau W.;  
 RT "Expression of vascular endothelial growth factor during embryonic angiogenesis and endothelial cell differentiation.";  
 RL Development 114:521-532(1992).  
 RN [2]  
 RP SEQUENCE FROM N.A. (ISORFMS VEGF-1).  
 RA MEDLINE=9235593; PubMed=1644816;  
 RX Claffey K.P., Wilkison W.O., Spiegelman B.M.;  
 RT "Vascular endothelial growth factor. Regulation by cell differentiation and activated second messenger pathways.";  
 RL J. Biol. Chem. 267:16317-16322(1992).  
 RN [3]  
 RP SEQUENCE OF 1-3 FROM N.A.  
 RX MEDLINE=96216498; PubMed=8632007;  
 RA Shima D.T., Kuroki M., Deutsch U., Ng Y., Adamis A.P., D'Amore P.A.;  
 RT "The mouse gene for vascular endothelial growth factor. Genomic structure, definition of the transcriptional unit, and characterization of transcriptional and post-transcriptional regulatory sequences.";  
 RL J. Biol. Chem. 271:3877-3883(1996).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: VEGF-1 and VEGF-2 are secreted while VEGF-3 remains cell-surface associated unless released by heparin.  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=3;  
 CC Name=VEGF-3; Synonyms=VEGF18;  
 CC IsoId=Q00731-1; Sequence=displayed;  
 CC Name=VEGF-1; Synonyms=VEGF164;  
 CC IsoId=Q00731-2; Sequence=VSP\_004626, VSP\_004627;  
 CC Name=VEGF-2; Synonyms=VEGF120;  
 CC IsoId=Q00731-3; Sequence=VSP\_004628;  
 CC -1- TISSUE SPECIFICITY: In developing embryos, expressed mainly in the choroid plexus, paraventricular neuroepithelium, placenta and kidney glomeruli; also found in bronchial epithelium, adrenal gland and in seminiferous tubules of testis. High expression of VEGF continues in kidney glomeruli and choroid plexus in adults.  
 CC -1- DOMAIN: VEGF-3 contains a basic insert which acts as a cell retention signal.  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.

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CC EMBL; S37052; AAB22252.1; -;  
 CC EMBL; S38083; AAB22253.1; -;  
 CC EMBL; S38100; AAB22254.1; -;  
 CC EMBL; M95200; AAA40547.1; -;  
 CC EMBL; U41383; -; NOT\_ANNOTATED\_CDS.  
 CC PIR; A44881; A44881.  
 CC PIR; B44881; B44881.  
 CC HSSP; P15692; 2VPF.  
 CC MGD; MGI:103178; VEGfa.  
 CC InterPro; IPR000072; PD\_growth\_factor.  
 CC Pfam; PF00341; PDGF; 1.  
 CC ProDom; PD001629; PD\_growth\_factor; 1.  
 CC SMART; SM00141; PDGF; 1.  
 CC PROSITE; PS00249; PDGF\_1; 1.  
 CC PROSITE; PS50278; PDGF\_2; 1.  
 CC K0 MitoGen; Angiogenesis; Growth factor; Glycoprotein; Signal; Heparin-binding; Alternative splicing; Multigene family.  
 CC K0 SIGNAL  
 FT CHAIN 1 26  
 FT DISULFID 27 214  
 FT DISULFID 51 93  
 FT DISULFID 82 127  
 FT DISULFID 86 129  
 FT DISULFID 76 76  
 FT DISULFID 85 85  
 FT CARBOHYD 100 100  
 FT VARSPLIC 140  
 FT VARSPLIC 141 164  
 FT VARSPLIC 141 208  
 FT CONFLICT 117 118  
 FT SEQUENCE 214 AA; 25283 MW; B5540B51E4B6E17 CRC64;  
 QY 3 ESNITMOIMRIKPH 16  
 |||||  
 Db 98 ESNITMOIMRIKPH 111

Query Match 83.7%; Score 72; DB 1; Length 214;  
 Best Local Similarity 100.0%; Pred. No. 3e-06;  
 Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 98 ESNITMOIMRIKPH 111

RESULT 3  
 ID VEGA\_SHEEP STANDARD; PRT: 146 AA.

AC P50412;  
 DT 01-OCT-1996 (Rel. 34, Created)  
 DT 01-OCT-1996 (Rel. 34, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovidae; Caprinae; Ovis.  
 OX NCBI\_TaxId=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Kidney;  
 RX MEDLINE=97111958; PubMed=8958842;  
 RA Redmer D.A., Dai Y., Li J., Charnock-Jones D.S., Smith S.K., Reynolds L.P., Moor R.M.;

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RT "Characterization and expression of vascular endothelial growth
RT factor (VEGF) in the ovine corpus luteum."
RT J. Reprod. Fert. 108:157-165(1996).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
DR EMBL; X89506; CA61677.1; -.
DR PIR; S57956; S57956.
DR HSSP; P15692; IVP.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
DR MitoGen; Angiogenesis; Growth factor; Glycoprotein; signal;
DR Heparin-binding; Multigene family.
KW CHAIN 1 26 BY SIMILARITY.
FT SIGNAL 1 26 VASCULAR ENDOTHELIAL GROWTH FACTOR A.
FT DISULFID 51 146 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 100 100 N-LINKED (GLCNAC:...) (POTENTIAL).
SQ SEQUENCE 146 AA; 17247 MW; 4E792CB557F91760 CRC64;

Query Match 82.6%; Score 71; DB 1; Length 146;
Best Local Similarity 93.3%; Pred. No. 3.1e-06;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 EESNITQIMRIKPH 16
Db 97 EEFNITQIMRIKPH 111

RESULT 4
VEGA_CAVPO STANDARD; PRT; 164 AA.
ID VEGA_CAVPO
AC P26617;
DT 01-AUG-1992 (Rel. 23, Created)
DT 01-AUG-1992 (Rel. 23, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A (VEGF-A) (Vascular permeability
DE factor) (VPF).
GN VEGF OR VEGFA.
OS Cavia porcellus (Guinea pig).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX NCB1_TaxID=10141;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Bile duct;
RA Berse B.;
RL Submitted (JAN-1992) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial
CC cell growth. Induces endothelial proliferation and vascular
CC permeability (By similarity).

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CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (By
CC similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; M84230; AAA37057.1; -.
DR HSSP; P15692; IYGH.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
DR MitoGen; Angiogenesis; Growth factor; Glycoprotein.
FT DISULFID 25 67 BY SIMILARITY.
FT DISULFID 56 101 BY SIMILARITY.
FT DISULFID 60 103 BY SIMILARITY.
FT DISULFID 50 50 INTERCHAIN (BY SIMILARITY).
FT DISULFID 59 59 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 74 74 N-LINKED (GLCNAC:...) (POTENTIAL).
SQ SEQUENCE 164 AA; 19330 MW; 9EB86A81A9D5DCA4 CRC64;

Query Match 82.6%; Score 71; DB 1; Length 164;
Best Local Similarity 93.3%; Pred. No. 3.5e-06;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 EESNITQIMRIKPH 16
Db 71 EEFNITQIMRIKPH 85

RESULT 5
VEGA_BOVIN STANDARD; PRT; 190 AA.
ID VEGA_BOVIN
AC P15691;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
OX NCB1_TaxID=9913;
RN [1]
RP SEQUENCE FROM N.A. AND SEQUENCE OF 27-47.
RX MEDLINE=90069608; PubMed=2479986;
RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;
RT "Vascular endothelial growth factor is a secreted angiogenic
RT mitogen."
RL Science 246:1306-1309(1998).
RN [2]
RP SEQUENCE OF 27-190 FROM N.A. (ISOFORMS ALPHA AND BETA).
RX MEDLINE=90121225; PubMed=2610687;
RA Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J.,
RA Lau K., Crisp T., Fiddes J.C., Abraham J.A.;
RT "Vascular endothelial growth factor: a new member of the platelet-
RT derived growth factor gene family."
RL Biochem. Biophys. Res. Commun. 165:1198-1206(1989).
RN [3]
RP SEQUENCE OF 27-31.

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RA	MEDLINE=69286596; PubMed=2735925; *
RT	Ferrara N., Henzel W.J.;
RT	"Pituitary follicular cells secrete a novel heparin-binding growth
RT	factor specific for vascular endothelial cells.";
RL	Biochem. Biophys. Res. Commun. 161:851-858(1989).
CC	-1- FUNCTION: Growth factor active in angiogenesis; Vasclogenesis and
CC	endothelial cell growth. It induces endothelial cell
CC	proliferation, promotes cell migration, inhibits apoptosis, and
CC	induces permeabilization of blood vessels. It binds to the
CC	VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC	heparin (By similarity).
CC	-1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC	with PLGF (By similarity).
CC	-1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC	to the extracellular matrix unless released by heparin (By
CC	similarity).
CC	-1- ALTERNATIVE PRODUCTS:
CC	Event-Alternative splicing; Named isoforms=2;
CC	Name=Alpha;
CC	IsoId=PI5691-1; Sequence=Displayed;
CC	IsoId=PI5691-2; Sequence=VSP 004613, VSP 004614;
CC	-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC	-----
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CC	or send an email to <a href="mailto:license@isb-sdb.ch">license@isb-sdb.ch</a> ).
CC	-----
DR	EMBL; M32976; AAA30502.1; -;
DR	EMBL; M31836; AAA30804.1; -;
DR	EMBL; M33750; AAA30805.1; -;
DR	PIR; B40080; B40080.
DR	HSSP; P15692; 1VGH.
DR	InterPro; IPR000072; PD_growth_factor.
DR	Pfam; PF00341; PDGF; 1.
DR	ProDom; PD001629; PD_growth_factor; 1.
DR	SMART; SMO0141; PDGF; 1.
DR	PROSITE; PS00249; PDGF_1; 1.
DR	PROSITE; PS50278; PDGF_2; 1.
KW	Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW	Heparin-binding; Alternative splicing; Multigene family.
FT	CHAIN 1 26
FT	DISULFID 27 190
FT	DISULFID 51 93
FT	DISULFID 82 127
FT	DISULFID 86 129
FT	DISULFID 76 76
FT	DISULFID 85 85
FT	CARBOHYD 100 100
FT	VASAPLIC 139 183
FT	VASAPLIC 184 184
FT	FT
FT	FT
FT	FT
SEQUENCE	190 AA; 22310 MW; EDPF903E46E24789 CRC64;
Query Match	82.6%; Score 71; DB 1; Length 190;
Best Local Similarity	93.3%; Pred. No. 4e-06;
Matches 14, Conservative	0; Mismatches 1; Indels 0; Gaps 0;
Oy	2 EESNITMOIMRIKPH 16
Db	97 EESNITMOIMRIKPH 111
RESULT 6	
VEGA_MESAU	
ID	Q99PS1. STANDARD; PRT; 190 AA.
DT	28-FEB-2003 (Rel. 41, Created)

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DT      28-FEB-2003 (Rel. 41, last sequence update)
DT      15-SEP-2003 (Rel. 42, last annotation update)
DE      Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE      permeability factor) [VPF].
DE      VEGF OR VEGFA.
GN      Mesocriscetus
OC      Mesocriscetus auratus (Golden hamster).
OC      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC      Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC      Mesocriscetus.
OX      NCBI_TaxID=10036;
RN      [1]
RP      SEQUENCE FROM N.A.
RC      TISSUE=Decidua, and Embryo;
RX      MEDLINE=99311285; Pubmed=10382276;
RY      Yi X.J., Jiang H.Y., Lee K.K., Tang P.L., Chow P.H.;
RT      "Expression of vascular endothelial growth factor (VEGF) and its
RT      receptors during embryonic implantation in the golden hamster
RT      (Mesocriscetus auratus)." ;
RL      Cell Tissue Res. 296:339-349(1999).
CC      -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC      endothelial cell growth. It induces endothelial cell
CC      proliferation, promotes cell migration, inhibits apoptosis, and
CC      induces permeabilization of blood vessels. It binds to the
CC      VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC      heparin (By similarity).
CC      -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC      with PlGF (By similarity).
CC      -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC      to the extracellular matrix unless released by heparin (By
CC      similarity).
CC      BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
-----
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CC      use by non-profit institutions as long as its content is in no way
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CC      entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC      or send an email to license@isb-sib.ch).
-----
EMBL; AF063013; MAK00049.1; -.
HSP; PI5692; IYCH.
DR      InterPro; IPR000072; PD_growth_factor.
DR      Pfam; PF00341; PDGF_1.
DR      ProDom; PD001629; PD_growth_factor; 1.
DR      SMART; SMO0141; PDGF_1.
DR      PROSITE; PS00249; PDGF_1.
DR      PROSITE; PS50278; PDGF_2; 1.
KW      Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW      Heparin-binding; Multigene family.
FT      SIGNAL          1         26
FT      CHAIN           1         26
FT      DISULFID        51         93
FT      DISULFID        82        127
FT      DISULFID        86        129
FT      DISULFID        76         76
FT      DISULFID        85         85
FT      CARBOHYD        100        100
SQ      SEQUENCE       190 AA;  22276 MW;  F00CBA8E79A465F CRC64;
Query Match              82.6%; Score 71; DB 1; Length 190;
Beat Local Similarity    92.9%; Pred. No. 4e-06;
Matches 13; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
Oy      3 ESNITMIMIKPH 16
Db      98 ESNITMIMIKPH 111
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QY	2	ESNSITMOIMRIKPH	16
DT	01-FEB-1996	(Rel. 33, Created)	
DT	01-FEB-1996	(Rel. 33, Last sequence update)	
DT	28-FEB-2003	(Rel. 41, Last annotation update)	
DE	Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).		
DE	VEGF OR VEGFA:		
GN	Sus scrofa (Pig).		
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Suidae; Sus.		
OC	NCBI_TaxID=9823;		
OX	(1)		
RP	SEQUENCE FROM N.A.		
RC	TISSUE=Heart;		
RA	MEDLINE=95143284; PubMed=7841203;		
RA	Sharma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;		
RT	"Nucleotide sequence and expression of the porcine vascular endothelial growth factor".		
RT	Biochim. Biophys. Acta 1260:235-238 (1995).		
RN	[2]		
RP	SEQUENCE FROM N.A.		
RA	Lee T., Coney J.M.;		
RT	"PCR cloning of porcine cardiac vascular endothelial growth factor gene".		
RL	Submitted (NOV-2000) to the EMBL/Genbank/DBJ databases.		
CC	-1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).		
CC	-1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).		
CC	-1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).		
CC	-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.		
CC	-----		
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CC	-----		
DR	EMBL; X81380; CAA57143.1; -.		
DR	EMBL; AF318502; AAG33064.1; -.		
DR	PIR; S52130; S52130.		
DR	HSSP; P15692; 1VGH.		
DR	InterPro; IPR000072; PD_growth_factor.		
DR	Pfam; PF00341; PDGF_1.		
DR	ProDom; PD001629; PD_growth_factor; 1.		
DR	SMART; SM00141; PDGF_1.		
DR	PROSITE; PS00249; PDGF_1; 1.		
DR	PROSITE; PS00278; PDGF_2; 1.		
KW	Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;		
KW	Heparin-binding; Multigene family.		
KW	Signal		
FT	CHAIN	1	26
FT	DISULFID	27	190
FT	DISULFID	51	93
FT	DISULFID	82	127
FT	DISULFID	86	129
FT	DISULFID	76	76
FT	DISULFID	85	85
FT	CARBOHYD	100	100
FT	CONFLICT	102	102
SQ	SEQUENCE	190 AA;	23368 MW; 040408BD7913047F CR664;
Query Match	Best Local Similarity	82.6%;	Score 71; DB 1; Length 190;
Matches	14; Conservative	0;	Mismatches 1; Indels 0; Gaps 0

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Db      97 EEFNITWQIMRIKPH 111
RESULT 8
VEGA_CANFA STANDARD; PRT; 214 AA.
ID_VEGA_CANFA
AC 09MYV3: 09XSP3; 09XSF4; 09XSF5;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular
DE permeability factor) (VPF).
DE VEGF OR VEGFA.
OS Canis familiaris (dog).
OC Eukaryota; Metazoa; Chordata; Craniota; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OX NCBI_TaxID=9615;
RN [1]
RP SEQUENCE FROM N.A. (ISOFORM VEGF-188).
RX MEDLINE=20125516; PubMed=10661874;
RA Scheidegger P., Weighlofer W., Suarez S., Kaeser-Hotz B., Steiner R.,
RA Ballmer-Hofer K., Jaussel R.;
RT "Vascular endothelial growth factor (VEGF) and its receptors in tumor-
RT bearing dogs.";
RL Biol. Chem. 380:1449-1454(1999).
RN [2]
RN SEQUENCE FROM N.A. (ISOFORMS VEGF-188; VEGF-182 AND VEGF-164).
RP TISSUE=Heart;
RC Jirjaling L., Roque R.S.;
RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and
CC endothelial cell growth. It induces endothelial cell
CC proliferation, promotes cell migration, inhibits apoptosis, and
CC induces permeabilization of blood vessels. It binds to the
CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and
CC heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer
CC with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or
CC to the extracellular matrix unless released by heparin (By
CC similarity).
CC -1- ALTERNATIVE PRODUCTS:
CC Event-Alternative splicing; Named isoforms=3;
CC Comment=Additional isoforms seem to exist;
CC Name=VEGF-188;
CC IsoId=Q9MYV3-1; Sequence=Displayed;
CC Name=VEGF-182;
CC IsoId=Q9MYV3-2; Sequence=VSP_004617;
CC Name=VEGF-164;
CC IsoId=Q9MYV3-3; Sequence=VSP_004615, VSP_004616;
CC -1- SIMILARITY: BELONGS TO THE PDGFR/VEGF FAMILY OF GROWTH FACTORS.
-----
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CC
DR EMBL, AJ133758; CAB82426.1; -
DR EMBL, AF133250; AAD29684.1; -
DR EMBL, AF133249; AAD29683.1; -
DR EMBL, AF133248; AAD29682.1; -
DR HSSP; P15692; 1VGH.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SMO0141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50276; PDGF_2; 1.
DR Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KM

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KW Heparin-binding; Alternative splicing; Multigene family.  
 FT SIGNAL 1 26  
 FT SUBCAT 27 214  
 FT DISULFID 51 93  
 FT DISULFID 82 127  
 FT DISULFID 86 129  
 FT DISULFID 76 76  
 FT DISULFID 85 85  
 FT CARBOHYD 100 100  
 FT VARSPLIC 140 140  
 FT VARSPLIC 141 164  
 FT VARSPLIC 159 164  
 FT CONFLICT 143 143  
 FT CONFLICT 161 161  
 SQ SEQUENCE 214 AA; 25175 MW; 0AC980A158C44B27 CRC64;  
 Query Match 82.6%; Score 71; DB 1; Length 214;  
 Best Local Similarity 93.3%; Pred. No. 4.6e-06;  
 Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 2 ESNITMQRIRKPH 16  
 DB 97 EEFNTMQIRIKPH 111  
 RESULT 9  
 VEGA\_RAT STANDARD; PRT; 214 AA.  
 AC P16612; Q9JGX7; Q9JGX6; Q9JGX7;  
 DT 01-AUG-1990 (Rel. 15, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 28-FEB-2003 (Rel. 41, Last annotation update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (vascular permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Rattus norvegicus (Rat).  
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.  
 OX NCBI\_TaxID=10116;  
 RN [1]  
 RP SEQUENCE FROM N.A. (ISOFORM VEGF-A164), AND SEQUENCE OF 27-190.  
 RX MEDLINE=90207249; PubMed=2320579;  
 RA Conn G., Bayne M., Soderman D.D., Kwok P.W., Sullivan K.A., Paillet T.M., Hope D.A., Thomas K.A.;  
 RT "Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is homologous to platelet-derived growth factor";  
 RL Proc. Natl. Acad. Sci. U.S.A. 87:2628-2633 (1990).  
 RN [2]  
 RP SEQUENCE FROM N.A. (ISOFORMS VEGF-A188; VEGF-A164; VEGF-A144 AND VEGF-A120).  
 RA Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;  
 RT "Developmental expression of vascular endothelial growth factor-A (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat mesenteric muscle";  
 RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.  
 RN [3]  
 RP SEQUENCE OF 27-40.  
 RC TISSUE=Glial tumor;  
 RX MEDLINE=95221439; PubMed=7706320;  
 RA Disalvo J., Bayne M.L., Conn G., Kwok P.W., Trivedi P.G., Soderman D.D., Paillet T.M., Sullivan K.A., Thomas K.A.;  
 RT "Purification and characterization of a naturally occurring vascular endothelial growth factor, placenta growth factor heterodimer";  
 RL J. Biol. Chem. 270:7117-7123 (1995).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
 CC

CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: VEGF-A120 is acidic and freely secreted. VEGF-A164 is more basic, has heparin-binding properties and, although a significant proportion remains cell-associated, most is freely secreted. VEGF-A188 is very basic; it is cell-associated after secretion and is bound avidly by heparin and the extracellular matrix, although it may be released as a soluble form by heparin, heparinase or plasmin (By similarity).  
 CC -1- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=4;  
 CC Comment=Additional isoforms seem to exist;  
 CC Name=VEGF-A188;  
 CC IsoId=P16612-1; Sequence=Displayed;  
 CC Name=VEGF-A164;  
 CC IsoId=P16612-2; Sequence=VSP\_004629, VSP\_004630;  
 CC Name=VEGF-A144;  
 CC IsoId=P16612-3; Sequence=VSP\_004632;  
 CC Name=VEGF-A120;  
 CC IsoId=P16612-4; Sequence=VSP\_004631;  
 CC -1- TISSUE SPECIFICITY: Expressed in the pituitary, in brain, in particular in supraoptic and paraventricular nuclei and the choroid plexus. Also found abundantly in the corpus luteum of the ovary and in kidney glomeruli.  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 DR EMBL; M32167; AAA41211.1; -;  
 DR EMBL; AF215725; AAF19211.1; -;  
 DR EMBL; AF215726; AAF19212.1; -;  
 DR EMBL; AF222779; AAF25958.1; -;  
 DR HSSP; P15692; 1VPP.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1.  
 DR PROSITE; PS0278; PDGF\_2; 1.  
 KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KW Heparin-binding; Alternative splicing; Multigene family.  
 FT SIGNAL 1 26  
 FT CHAIN 27 214  
 FT DISULFID 51 93  
 FT DISULFID 82 127  
 FT DISULFID 86 129  
 FT DISULFID 76 76  
 FT DISULFID 85 85  
 FT CARBOHYD 100 100  
 FT VARSPLIC 140 140  
 FT VARSPLIC 141 164  
 FT VARSPLIC 141 164  
 FT VARSPLIC 141 164  
 FT VARSPLIC 141 208  
 FT VARSPLIC 141 208  
 FT VARSPLIC 141 208  
 FT CONFLICT 101 101  
 SQ SEQUENCE 214 AA; 25239 MW; 60PB876F5304946 CRC64;  
 Query Match 82.6%; Score 71; DB 1; Length 214;  
 Best Local Similarity 92.9%; Pred. No. 4.6e-06;  
 Matches 13; Conservative 1; Mismatches 0; Indels 0; Gaps 0;  
 QY 3 ESNITMQRIRKPH 16  
 DB 98 ESNITMQRIRKPH 111

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RESULT 10
VEGA_HORSE
ID_VEGA_HORSE STANDARD; PRT; 190 AA.
AC 09GKR0;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).
DE permeability factor (VPF).
GN VEGF OR VEGFA.
OS Equus caballus (Horse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
OX NCBI_TaxID=9796;
[1]
RP SEQUENCE FROM N.A.
RA Miura N., Misumi K., Kawahara K., Nakashima M., Fukumitsu S., Kawabata H., Uto N., Oka T., Maruyama I., Sakamoto H.;
RT "Cloning of cDNA and high-level expression of equine vascular endothelial growth factor (VEGF).";
RL Submitted (JAN-2001) to the EMBL/Genbank/DBJ databases.
CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial cell growth. Induces endothelial proliferation and vascular permeability (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PLGF (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC
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CC
CC -----
CC EMBL; AB053350; BAB20890.1; -.
CC HSSP; P15692; 1VGH.
CC InterPro; IPR000072; PD_growth_factor.
CC Pfam; PF00341; PDGF_1.
CC ProDom; PD001629; PD_growth_factor; 1.
CC SMART; SM00141; PDGF_1.
CC PROSITE; PS00249; PDGF_1; 1.
CC PROSITE; PS00278; PDGF_2; 1.
CC KEGG; K04901; Angiogenesis; Growth factor; Glycoprotein; Signal; Multigene family.
CC FT SIGNAL 1 26 POTENTIAL.
CC FT CHAIN 1 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.
CC FT DISULFID 51 93 BY SIMILARITY.
CC FT DISULFID 82 127 BY SIMILARITY.
CC FT DISULFID 86 129 BY SIMILARITY.
CC FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
CC FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
CC FT CARBOHYD 100 100 N-LINKED (GLCNAC...) (POTENTIAL).
CC SQ SEQUENCE 190 AA; 22312 MW; 8799E161439E5F87 CRC64;
Query Match 76.7%; Score 66; DB 1; Length 190;
Best Local Similarity 92.9%; Pred. No. 3,6e-05;
Matches 13; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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AC P52582; Q91420;
DT 01-OCT-1996 (Rel. 34, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).
DE permeability factor (VPF).
GN VEGF OR VEGFA.
OS Gallus gallus (Chicken), and
OS Coturnix coturnix japonica (Japanese quail).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
OX NCBI_TaxID=9031, 93934;
[1]
RP SEQUENCE FROM N.A.
RA SPECIES=Chicken; TISSUE=Heart;
RC Takahashi T.;
RT "Chick embryonic ventricular myocytes VEGF";
RL Submitted (FEB-1998) to the EMBL/Genbank/DBJ databases.
[2]
RP SEQUENCE FROM N.A. (ISOFORMS VEGF-190; VEGF-166 AND VEGF-146).
RC SPECIES=C.japonica; TISSUE=Embryo;
RX MEDLINE=96005007; PubMed=7556923;
RA Flame I., von Reutern M., Drexler H.C., Syed-Ali S., Rissau W.;
RT "Overexpression of vascular endothelial growth factor in the avian embryo induces hypervascularization and increased vascular permeability without alterations of embryonic pattern formation.";
RL Dev. Biol. 171:399-414(1995).
[3]
RP SEQUENCE OF 60-187 FROM N.A. (ISOFORMS VEGF-190 AND VEGF-166).
RC SPECIES=C.japonica;
RX MEDLINE=95301109; PubMed=7781909;
RA Flame I., Breier G., Rissau W.;
RT "Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (Flk-1) are expressed during vasculogenesis and vascular differentiation in the quail embryo.";
RL Dev. Biol. 169:699-712(1995).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PLGF (By similarity).
CC -1- ALTERNATIVE PRODUCTS:
CC Event-Alternative splicing; Named isoforms=3;
CC Comment=Additional isoforms seem to exist;
CC Name=VEGF-190;
CC IsoId=P52582-1; Sequence=Displayed;
CC Name=VEGF-166;
CC IsoId=P52582-2; Sequence=VSP_004633, VSP_004634;
CC Note=Has been shown to exist only in quail so far;
CC Name=VEGF-146;
CC IsoId=P52582-3; Sequence=VSP_004635, VSP_004636;
CC Note=Has been shown to exist only in quail so far;
CC -1- TISSUE SPECIFICITY: Abundantly and equally expressed in heart and liver. In kidney glomeruli, brain and yolk sac, VEGF-166 is 5- to 10-times more abundant than VEGF-190.
CC -1- DEVELOPMENTAL STAGE: VEGF-166 is expressed early at day 1 and is upregulated during gastrulation. Expression of VEGF-190 is detectable only from day 2.
CC -1- DOMAIN: VEGF-190 contains a basic insert which acts as a cell retention signal.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC
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CC

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CC -----
DR EMBL, AB011078; BAA24925.1; -
DR EMBL, S79680; AAB35371.1; -
DR HSSP, P15692; 1YGH.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS00249; PDGF_2; 1.
DR Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Alternative splicing; Multigene family.
KM SIGNAL
FT CHAIN 1 26
FT DISULFID 27 216
FT DISULFID 52 94
FT DISULFID 83 128
FT DISULFID 87 130
FT DISULFID 86 86
FT CARBOHYD 101 101
FT VARSPLC 142 142
FT VARSPLC 143 166
FT VARSPLC 166 166
FT VARSPLC 167 210
FT VARSPLC 167 210
SQ SEQUENCE 216 AA; 25203 MW; 82E69C2F6FC6DA7 CRC64;

Query Match
Best Local Similarity 61.6%; Score 53; DB 1; Length 216;
Matches 9; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 5 NITWQIMRIKPH 16
DB 101 NITWMEIRIKPH 112

RESULT 12
PLGF_MOUSE STANDARD; PRT; 158 AA.
AC P49764;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DE 28-FEB-2003 (Rel. 41, Last annotation update)
DE Placenta growth factor precursor (PLGF).
GN PGF OR PLGF.
OS Mus musculus (Mouse).
OC Mammalia; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_Taxid=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Heart;
RX MEDLINE=97059399; PubMed=8903720;
RA Dipalma T., Tucci M., Russo G., Maglione D., Lago C.T., Romano A.,
RA Saccone S., della Valle G., de Gregorio L., Dragani T.A.,
RA Vigiiletto G., Perisco M.G.;
RT "The placenta growth factor gene of the mouse.";
RL Mamm. Genome 7:6-12(1996).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=NIH Swiss;
RX MEDLINE=98065381; PubMed=9401819;
RA Achen M.G., Gad J.M., Stacker S.A., Wilks A.F.;
RT "Placenta growth factor and vascular endothelial growth factor are
co-expressed during early embryonic development.";
RL Growth Factors 15:69-80(1997).
CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial
cell growth, stimulating their proliferation and migration. It
binds to receptor VEGFR-1/Flt1 (By similarity).
CC -1- SUBUNIT: Antiparallel homodimer; disulfide-linked. Also found as

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CC heterodimer with VEGF/VEGF-A (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted (By similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC or send an email to license@ebi.ac.uk).
CC -----
DR EMBL, X80171; CAA56453.1; -
DR EMBL, X96793; CAA5587.1; -
DR HSSP, P49763; 1FZV.
DR MGD, MGI:105095; Pgf.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS00249; PDGF_2; 1.
DR Angiogenesis; Mitogen; Growth factor; Glycoprotein; Signal.
KW SIGNAL
FT CHAIN 1 18
FT DISULFID 48 90
FT DISULFID 79 125
FT DISULFID 83 127
FT DISULFID 73 73
FT DISULFID 82 82
FT CARBOHYD 29 30
FT CARBOHYD 30 30
FT CARBOHYD 97 97
SQ SEQUENCE 158 AA; 17876 MW; F16128BEA0790438 CRC64;

Query Match
Best Local Similarity 52.3%; Score 45; DB 1; Length 158;
Matches 8; Conservative 4; Mismatches 1; Indels 0; Gaps 0;

QY 4 NITWQIMRIKPH 16
DB 96 ANITWQIMRIKPH 108

RESULT 13
PLGF_RAT STANDARD; PRT; 158 AA.
AC Q63434;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DE 15-SEP-2003 (Rel. 42, Last annotation update)
DE Placenta growth factor precursor (PLGF).
GN PLGF.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_Taxid=10116;
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RX MEDLINE=95221439; PubMed=7706320;
RA Disalvo J., Bayne M.L., Conn G., Kwok P.W., Trivedi P.G.,
RA Soderman D.D., Paliet T.M., Sullivan K.A., Thomas K.A.;
RT "Purification and characterization of a naturally occurring vascular
endothelial growth factor/placenta growth factor heterodimer.";
RL J. Biol. Chem. 270:7717-7723(1995).
CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial
cell growth, stimulating their proliferation and migration. It
binds to receptor VEGFR-1/Flt1 (By similarity).
CC -1- SUBUNIT: Antiparallel homodimer; disulfide-linked. Also found as
heterodimer with VEGF/VEGF-A.
CC -1- SUBCELLULAR LOCATION: Secreted (By similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----

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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; L40030; AAA97426.1; -
DR PIR; A56125; A56125.
DR HSSP; P49763; IF2V.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1.
DR PROSITE; PS0278; PDGF_2; 1.
DR Angiogenesis; Mlgen; Growth factor; Glycoprotein; signal.
KW SIGNAL
FT CHAIN 1 23 OR 26.
FT DISULFID 48 158 PLACENTA GROWTH FACTOR.
FT DISULFID 79 125 BY SIMILARITY.
FT DISULFID 83 127 BY SIMILARITY.
FT DISULFID 73 73 INTERCHAIN (BY SIMILARITY).
FT DISULFID 82 82 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 29 29 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 30 30 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 97 97 N-LINKED (GLCNAC. . .).
SQ SEQUENCE 158 AA; 17681 MW; B477137A82E15B9 CRC64;

Query Match 52.3%; Score 45; DB 1; Length 158;
Best Local Similarity 61.5%; Pred. No. 0.29;
Matches 8; Conservative 4; Mismatches 1; Indels 0; Gaps 0;

Oy 4 SNITMOIRIKPH 16
Db 96 ANITMOILKIPN 108

RESULT 14
ID IRS2_HUMAN STANDARD; PRT; 1324 AA.
AC Q9Y4H2;
RT 30-MAY-2000 (Rel. 39, Created)
DT 30-MAY-2000 (Rel. 39, Last sequence update)
DE 28-FEB-2003 (Rel. 41, Last annotation update)
DE Insulin receptor substrate-2 (IRS-2).
GN IRS2.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE;97460123; PubMed;9312143;
RA Ogihara T., Isebe T., Ichimura T., Taoka M., Funaki M., Sakoda H.,
RA Onishi Y., Inukai K., Anai M., Fukushima Y., Kikuchi M., Yazaki Y.,
RA Oka Y., Amano T.;
RT "14-3-3 protein binds to insulin receptor substrate-1, one of the
RT binding sites of which is in the phosphotyrosine binding domain.";
RL J. Biol. Chem. 272:25267-25274(1997).
CC -1- FUNCTION: MAY MEDATE THE CONTROL OF VARIOUS CELLULAR PROCESSES
CC BY INSULIN.
CC -1- SIMILARITY: Contains 1 PH domain.
CC -1- SIMILARITY: Contains 1 PTB domain.
CC -----
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CC -----
DR EMBL; AB000732; BAA24500.1; -
DR HSSP; P35568; IRS.
DR Genew; HGNC:6126; IRS2.
DR MIM; 600797; -
DR GO; GO:0004871; F:signal transducer activity; TAS.
DR GO; GO:0006006; P:glucose metabolism; TAS.
DR GO; GO:0007165; P:signal transduction; TAS.
DR InterPro; IPR002404; Insln_receptorst1.
DR InterPro; IPR001849; Ptnl_receptorst1.
DR Pfam; PF02174; IRS; 1.
DR Pfam; PF00169; PH; 1.
DR PRINTS; PRO0628; INSULINRS1.
DR SMART; SM00233; PH; 1.
DR SMART; SM00310; PTBI; 1.
DR PROSITE; PS50003; PH_DOMAIN; 1.
KW Phosphorylation; Polymorphism; PH.
FT DOMAIN 16 144
FT DOMAIN 190 303
FT MOD_RES 540 540
FT MOD_RES 540 540
FT MOD_RES 653 653
FT MOD_RES 675 675
FT MOD_RES 675 675
FT MOD_RES 919 919
FT MOD_RES 919 919
FT MOD_RES 978 978
FT MOD_RES 978 978
FT MOD_RES 1253 1253
FT MOD_RES 1253 1253
FT DOMAIN 19 28
FT DOMAIN 371 380
FT DOMAIN 447 452
FT DOMAIN 460 467
FT DOMAIN 533 537
FT DOMAIN 642 645
FT DOMAIN 694 701
FT DOMAIN 944 947
FT DOMAIN 1031 1038
FT DOMAIN 1265 1278
FT VARIANT 1057 1057
SQ SEQUENCE 1324 AA; 136482 MW; 3D7B4AB2AE45104 CRC64;

Query Match 51.2%; Score 44; DB 1; Length 1324;
Best Local Similarity 42.9%; Pred. No. 4.3;
Matches 6; Conservative 6; Mismatches 2; Indels 0; Gaps 0;

Oy 1 CEESNITMOIRIK 14
Db 233 CEPSVILQIMNIR 246

RESULT 15
ID OSTA_SCHPO STANDARD; PRT; 450 AA.
AC Q10176;
RT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Putative dolichyl-diphosphooligosaccharide--protein
DE glycosyltransferase alpha subunit precursor (EC 2.4.1.119)
DE (Oligosaccharyl transferase alpha subunit).
GN SPAC27F1.07.
OS Schizosaccharomyces pombe (Fission yeast).
OC Eukaryota; Fungi; Ascomycota; Schizosaccharomycetes;
OC Schizosaccharomycetales; Schizosaccharomycetaceae;
OC Schizosaccharomycetes.
OX NCBI_TaxID=4896;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=972;

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MEDLINE=21848401; PubMed=11859360;

Db 287 EYGNITTSNREVEPH 301

Search completed: January 30, 2004, 11:41:07  
Job time : 4.69231 secs

RA Wood V., Williams R., Rajandream M.A., Lyne M., Lyne R., Stewart A.,  
 RA Spouris J., Peat N., Hayles J., Baker S., Baeham D., Bowman S.,  
 RA Brooks K., Brown D., Brown S., Chillingworth T., Churcher C.M.,  
 RA Collins M., Connor R., Cronin A., Davis P., Felwell T., Frazer A.,  
 RA Gentles S., Goble A., Hamlin N., Harris D., Hidalgo J., Hodgson G.,  
 RA Holroyd S., Hornsby T., Howarth S., Huckle E.J., Hunt S., Jagels K.,  
 RA James K., Jones L., Jones M., Leather S., McDonald S., McLean J.,  
 RA Moorey P., Moule S., Mungall K., Murphy L., Niblett D., Odell C.,  
 RA Oliver K., O'Neill S., Pearson D., Quail M.A., Rabinowitch E.,  
 RA Rutherford K., Rutter S., Saunders D., Seeger K., Sharp S.,  
 RA Skelton J., Simmonds M., Squares R., Squares S., Stevens K.,  
 RA Taylor K., Taylor R.G., Tivey A., Walsh S.V., Warren T., Whitehead S.,  
 RA Woodward J., Volckaert G., Aert R., Robben J., Grymoprez B.,  
 RA Wellens I., Vanstreels E., Rieger M., Schaefer M., Mueller-Auer S.,  
 RA Gabel C., Fuchs M., Fritz C., Holzer E., Moesl D., Hilbert H.,  
 RA Borzym K., Langer I., Beck A., Lehnach H., Reinhardt R., Pohl T.M.,  
 RA Eger P., Zimmermann W., Wedler H., Wambutt R., Purnelle B.,  
 RA Goffeau A., Cadieu E., Dreano S., Gloux S., Lelaure V., Mottier S.,  
 RA Galibert F., Aves S.J., Xiang Z., Hunt C., Moore K., Hurst S.M.,  
 RA Lucas M., Rochet M., Galliard C., Tallada V.A., Garzon A., Thode G.,  
 RA Daga R.R., Cruzado L., Jimenez J., Sanchez M., del Rey F., Benito J.,  
 RA Dominguez A., Revelta J.L., Moreno S., Armstrong J., Forsburg S.L.,  
 RA Cerutti L., Lowe T., McCombie W.R., Paulsen I., Potashkin J.,  
 RA Shpakovski G.V., Useery D., Barrell B.G., Nurse P.,  
 RT "The genome sequence of Schizosaccharomyces pombe.",  
 CC Nature 415:871-880(2002).  
 CC -!- FUNCTION: Essential subunit of N-oligosaccharyl transferase enzyme  
 CC which catalyzes the transfer of a high mannose oligosaccharide to  
 CC an asparagine residue within an Asn-X-Ser/Thr consensus motif in  
 CC nascent polypeptide chains.  
 CC -!- CATALYTIC ACTIVITY: Dolichyl diphosphooligosaccharide + protein L-  
 CC asparagine = dolichyl diphosphate + a glycoprotein with the  
 CC oligosaccharide chain attached by glycosylamine linkage to protein  
 CC L-asparagine.  
 CC -!- PATHWAY: Glycosylation.  
 CC -!- SUBCELLULAR LOCATION: Type I membrane protein. Endoplasmic  
 CC reticulum (By similarity).  
 CC -!- SIMILARITY: TO MAMMALIAN RIBOPHORIN I AND YEAST OST1.  
 CC  
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 CC  
 CC -----  
 CC EMBL, 269368; CAA93296.1; -.  
 CC DR PIR, T38465; T38465.  
 CC DR GenedB, Spombe; SPAC27F1.07; -.  
 CC DR Pfam, PF04597; Ribophorin\_1; 1.  
 CC KW Hypothetical protein; Transferase; Endoplasmic reticulum;  
 CC Transmembrane; Glycoprotein; Signal.  
 CC FT SIGNAL 1 18  
 CC FT CHAIN 19 450  
 CC FT  
 CC FT PUTATIVE DOLICHYL-  
 CC DIPIHOSPHOOLIGOSACCHARIDE--PROTEIN  
 CC GLYCOSYLTRANSFERASE ALPHA SUBUNIT.  
 CC LOMENAL (POTENTIAL).  
 CC FT  
 CC FT POTENTIAL.  
 CC FT DOMAIN 19 424  
 CC FT TRANSMEM 425 444  
 CC FT DOMAIN 445 450  
 CC FT CARBOHYD 290 290  
 CC FT CARBOHYD 383 383  
 CC FT CARBOHYD 405 405  
 CC FT CARBOHYD 422 422  
 CC FT CARBOHYD 450 450  
 CC FT CARBOHYD 51683 MW; 8C96E34C2EEB1F11 CRC64;  
 CC SQ SEQUENCE

Query Match 50.0%; Score 43; DB 1; Length 450;

Best Local Similarity 53.3%; Pred. No. 2.1;

Matches 8; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

QY 2 EESNITMQLIRKPH 16

| ||| ||::||



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OM protein - protein search, using sw model

Run on: January 30, 2004, 11:33:38 ; Search time 16.5744 Seconds  
(without alignments)  
249.110 Million cell updates/sec

Title: US-09-266-543-9

Perfect score: 86

Sequence: 1 CEESNTWQIMRIKPH 16

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 830525 seqs, 258052604 residues

Total number of hits satisfying chosen parameters: 830525

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

SPTREMBL\_23:\*  
1: sp\_archaea:\*  
2: sp\_bacteria:\*  
3: sp\_fungi:\*  
4: sp\_human:\*  
5: sp\_invertebrate:\*  
6: sp\_mammal:\*  
7: sp\_mhc:\*  
8: sp\_organelle:\*  
9: sp\_phage:\*  
10: sp\_plant:\*  
11: sp\_rodent:\*  
12: sp\_virus:\*  
13: sp\_vertebrate:\*  
14: sp\_unclassified:\*  
15: sp\_virus:\*  
16: sp\_bacteriap:\*  
17: sp\_archaeap:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	77	89.5	65	6 Q8M1N0	Q8M1N0 capra hircu
2	77	89.5	109	6 Q8M1N1	Q8M1N1 capra hircu
3	77	89.5	126	6 Q8M1P7	Q8M1P7 macaca mula
4	77	89.5	191	4 Q8M1J0	Q8M1J0 homo sapien
5	77	89.5	191	4 Q8M1B2	Q8M1B2 homo sapien
6	77	89.5	191	4 Q8M1B5	Q8M1B5 macaca fasci
7	72	83.7	190	11 Q8QX39	Q8QX39 spalax leuc
8	71	82.6	78	6 Q8N1S2	Q8N1S2 capreolus c
9	71	82.6	113	6 Q8M120	Q8M120 ovis aries
10	71	82.6	118	6 Q8M1B1	Q8M1B1 ovis aries
11	71	82.6	123	6 Q8N1S1	Q8N1S1 capreolus c
12	71	82.6	124	6 Q8GK00	Q8GK00 callithrix
13	71	82.6	124	6 Q8SP29	Q8SP29 sus scrofa
14	71	82.6	131	6 Q8M1B6	Q8M1B6 capreolus c
15	71	82.6	142	11 Q8ERL6	Q8ERL6 muscicula
16	71	82.6	184	6 Q8HY70	Q8HY70 mustela vis

17	71	82.6	189	6 Q951Q4	Q951Q4 felis silve
18	71	82.6	190	6 Q77643	Q77643 ovis aries
19	71	82.6	190	11 Q91ZB1	Q91ZB1 rattus norv
20	70	81.4	68	6 Q97500	Q97500 oryctolagus
21	70	81.4	75	6 Q18843	Q18843 oryctolagus
22	66	76.7	127	6 Q8MMQ4	Q8MMQ4 sus scrofa
23	66	76.7	128	6 Q8SP15	Q8SP15 equus cabal
24	60	69.8	148	13 Q42571	Q42571 xenopus lae
25	60	69.8	194	13 Q42572	Q42572 xenopus lae
26	46	53.5	206	12 Q56881	Q56881 grapevine 1
27	46	53.5	599	12 Q71211	Q71211 grapevine 1
28	46	53.5	599	12 Q39854	Q39854 grapevine 1
29	46	53.5	811	5 Q9VNP2	Q9VNP2 dirosophila
30	46	53.5	1011	5 Q24273	Q24273 dirosophila
31	45	52.3	1788	5 Q81G61	Q81G61 caenorhabdi
32	44	51.2	300	5 Q21187	Q21187 caenorhabdi
33	44	51.2	1337	4 Q96RR2	Q96RR2 homo sapien
34	44	51.2	1338	4 Q9Y615	Q9Y615 homo sapien
35	44	51.2	1338	4 Q9BZG0	Q9BZG0 homo sapien
36	44	51.2	1338	4 Q96RG4	Q96RG4 homo sapien
37	44	51.2	1339	4 Q96RG5	Q96RG5 homo sapien
38	43	50.0	611	12 Q65855	Q65855 beet yellow
39	42	48.8	132	12 Q9YMF3	Q9YMF3 oit virus
40	42	48.8	144	13 Q73822	Q73822 brachydanio
41	42	48.8	188	13 Q73682	Q73682 brachydanio
42	42	48.8	472	10 Q9LDJ9	Q9LDJ9 arabidopsis
43	42	48.8	599	12 Q8BEP6	Q8BEP6 arabidopsis
44	42	48.8	671	10 Q9S549	Q9S549 arabidopsis
45	42	48.8	721	16 Q8BUE7	Q8BUE7 mycoplasma

## ALIGNMENTS

### RESULT 1

ID Q8M1N0 PRELIMINARY; PRT; 65 AA.  
AC Q8M1N0;  
DT 01-OCT-2002 (TREMBLrel. 22, Last sequence update)  
DT 01-OCT-2002 (TREMBLrel. 23, Last annotation update)  
DE 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
DE Vascular endothelial growth factor 121 (Fragment).  
OS Capra hircus (Goat).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
OC Bovidae; Caprinae; Capra.  
NCBI\_TaxID=9925;  
RX NCBI\_TaxID=9925;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA TISSUE=Corpus luteum;  
RA Kawate N., Teuji M., Tamada H., Inaba T., Sawada T.;  
RT and Its Receptor during the Development and Maintenance of Caprine  
RT Corpora Lutea.";  
RL Submitted (May-2002) to the EMBL/Genbank/DBJ databases.  
DR EMBL: AY114353; AAM7674.1; -  
DR InterPro: IPR000072; PD\_growth\_factor.  
DR Pfam: PF00341; PDGF\_1.  
DR ProDom: PD001629; PD\_growth\_factor; 1.  
DR SMART: SM00141; PDGF\_1.  
DR PROSITE: PS00278; PDGF\_2; 1.  
FT NON TER  
SQ  
SEQUENCE 65 AA; 7562 MW; BA3E584364B05E3 CRC64;  
Query Match 89.5%; Score 77; DB 6; Length 65;  
Best Local Similarity 100.0%; Pred. No. 5.3e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 EESNTWQIMRIKPH 16  
Db 16 EESNTWQIMRIKPH 30

## RESULT 2

OBMINI PRELIMINARY; PRT; 109 AA.

ID OBMINI  
AC OBMINI  
DT 01-OCT-2002 (TREMBlrel. 22, Created)  
DT 01-OCT-2002 (TREMBlrel. 22, Last sequence update)  
DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
DE Vascular endothelial growth factor 165 (Fragment).  
OS Capra hircus (Goat).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea;  
OC Bovidae; Caprinae; Capra.  
NCBI\_TaxID=9925;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Corpus luteum;  
RA Kavate N., Tsuji M., Tamada H., Inaba T., Sawada T.;  
RT "Changes of Messenger RNAs Encoding Vascular Endothelial Growth Factor  
RT and Its Receptors during the Development and Maintenance of Caprine  
RT Corpora Lutea."  
RL Submitted (May-2002) to the EMBL/Genbank/DBJ databases.  
DR EMBL; AY14352; AAM76673.1; PD\_growth\_factor.  
DR InterPro; IPR000072; PD\_growth\_factor.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PD\_growth\_factor; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
FT NON TER  
SQ SEQUENCE 109 AA; 12656 MW; 912657251A37E023 CRC64;

Query Match 89.5%; Score 77; DB 6; Length 109;  
Best Local Similarity 100.0%; Pred. No. 8.8e-07;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITWQIMRIKPH 16

Db 16 EESNITWQIMRIKPH 30

## RESULT 3

Q9BDP7 PRELIMINARY; PRT; 126 AA.

ID Q9BDP7  
AC Q9BDP7  
DT 01-JUN-2001 (TREMBlrel. 17, Created)  
DT 01-JUN-2001 (TREMBlrel. 17, Last sequence update)  
DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
DE Vascular endothelial growth factor (Fragment).  
OS Macaca mulatta (Rhesus macaque).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
OC Cercopithecinae; Macaca.  
NCBI\_TaxID=9544;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Hazard T.M., Nayak N.R., Jia Y., Stouffer R.L.;  
RT "Rhesus macaque VEGF mRNA sequence."  
RL Submitted (JUN-2001) to the EMBL/Genbank/DBJ databases.  
DR EMBL; AF397373; AAK26379.1; --  
DR HSSP; P49763; IFZV.  
DR InterPro; IPR000072; PD\_growth\_factor.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PD\_growth\_factor; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
FT NON TER  
SQ SEQUENCE 126 AA; 14509 MW; 1175F2386A83BCF CRC64;

Query Match 89.5%; Score 77; DB 6; Length 126;  
Best Local Similarity 100.0%; Pred. No. 1e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITWQIMRIKPH 16

Db 91 EESNITWQIMRIKPH 105

## RESULT 4

O96KJ0 PRELIMINARY; PRT; 191 AA.

ID O96KJ0  
AC O96KJ0  
DT 01-DEC-2001 (TREMBlrel. 19, Created)  
DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)  
DE Vascular endothelial growth factor 165b.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Kidney;  
RA Sugiono M., Winkler M., Gyllatt D., Harper S.J., Bates D.O.;  
RT "A new isoform of vascular endothelial growth factor mRNA is down-  
RT regulated in renal tumors."  
RL (In) Unknown A. (eds.);  
RL Proceedings of the 7th World Congress on Microcirculation, pp.3-3,  
RL Sydney, Australia (2001).  
DR EMBL; AF430806; AAL27435.1; --  
DR InterPro; IPR000072; PD\_growth\_factor.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PD\_growth\_factor; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
SQ SEQUENCE 191 AA; 22258 MW; D25243E540AC79BD CRC64;

Query Match 89.5%; Score 77; DB 4; Length 191;  
Best Local Similarity 100.0%; Pred. No. 1.5e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITWQIMRIKPH 16

Db 98 EESNITWQIMRIKPH 112

## RESULT 5

O96L82 PRELIMINARY; PRT; 191 AA.

ID O96L82  
AC O96L82  
DT 01-DEC-2001 (TREMBlrel. 19, Created)  
DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
DT 01-OCT-2002 (TREMBlrel. 22, Last annotation update)  
DE Vascular endothelial growth factor.  
GN VEGF.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Liu J., Peng X., Yuan J., Qiang B.;  
RT "Cloning of vascular endothelial growth factor (VEGF) cDNA."  
RL Submitted (JUL-2001) to the EMBL/Genbank/DBJ databases.  
DR EMBL; AY047581; AAK95847.1; --  
DR InterPro; IPR000072; PD\_growth\_factor.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PD\_growth\_factor; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
SQ SEQUENCE 191 AA; 22314 MW; CCE57097DD3779BD CRC64;

Query Match 89.5%; Score 77; DB 4; Length 191;  
Best Local Similarity 100.0%; Pred. No. 1.5e-06;  
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;



QY 2 EESNTMOIMRIKPH 16  
 |||||  
 DB 98 EESNTMOIMRIKPH 112

## RESULT 6

Q95NE5 PRELIMINARY; PRT; 191 AA.  
 AC Q95NE5;  
 DT 01-DEC-2001 (TREMBLrel. 19, Created)  
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
 DT 01-OCT-2002 (TREMBLrel. 22, Last annotation update)  
 DE SIMVEGF165.  
 GN SIMVEGF165.  
 OS Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
 OC Cercopithecinae; Macaca.  
 NC NCB1\_TaxID=9541;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=96245208; PubMed=8641836;  
 RA Shima D.T., Gougos A., Miller J.W., Tolentino M., Robinson G.,  
 RA Adams A.P., D'Amore P.A.;  
 RT "Cloning and mRNA expression of vascular endothelial growth factor in  
 ischemic retinas of Macaca fascicularis";  
 RL Invest. Ophthalmol. Vis. Sci. 37:1334-1340 (1996).  
 DR EMBL; S82167; ABA47118.1; -  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS00278; PDGF\_2; 1.  
 SQ SEQUENCE 191 AA; 22314 MW; CCS57097DD3779BD CRC64;

Query Match 89.5%; Score 77; DB 6; Length 191;  
 Best Local Similarity 100.0%; Pred. No. 1.5e-06;  
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 EESNTMOIMRIKPH 16  
 |||||  
 DB 98 EESNTMOIMRIKPH 112

## RESULT 7

Q9QX39 PRELIMINARY; PRT; 190 AA.  
 AC Q9QX39;  
 DT 01-MAY-2000 (TREMBLrel. 13, Created)  
 DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor.  
 GN VEGF.  
 OS Spalax leucodon ehrenbergi (Ehrenberg's mole rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Spalacinae;  
 OC Nannospalax.  
 NC NCB1\_TaxID=30637;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=99313148; PubMed=10386577;  
 RA Avivi A., Resnick M.B., Nevo E., Joel A., Levy A.P.;  
 RT "Adaptive hypoxic tolerance in the subterranean mole rat Spalax  
 ehrenbergi: the role of vascular endothelial growth factor.";  
 RL FEBS Lett. 452:133-140 (1999).  
 DR EMBL; AF186236; AAD56245.1; -  
 DR HSSP; P49763; 1FZV.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.

DR PROSITE; PS00278; PDGF\_2; 1.  
 SQ SEQUENCE 190 AA; 22488 MW; 2228383BC65F0BF6 CRC64;

Query Match 83.7%; Score 72; DB 11; Length 190;  
 Best Local Similarity 100.0%; Pred. No. 1.4e-05;  
 Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 3 EESNTMOIMRIKPH 16  
 |||||  
 DB 98 EESNTMOIMRIKPH 111

## RESULT 8

Q9N1S2 PRELIMINARY; PRT; 78 AA.  
 AC Q9N1S2;  
 DT 01-OCT-2000 (TREMBLrel. 15, Created)  
 DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor isoform 121 (Fragment).  
 GN VEGF.  
 OS Capreolus capreolus (Roe deer).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidae;  
 OC Cervidae; Odocoileinae; Capreolus.  
 NC NCB1\_TaxID=9858;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Testis;  
 RX MEDLINE=20532861; PubMed=11078967;  
 RA Wagener A., Blotner S., Gortz F., Fickel J.;  
 RT "Detection of growth factors in the testis of roe deer (Capreolus  
 capreolus).";  
 RL Anim. Reprod. Sci. 64:65-75 (2000).  
 DR EMBL; AF152593; AAF73232.1; -  
 DR HSSP; P49763; 1FZV.  
 DR InterPro; IPR002400; GP\_cybknot.  
 DR InterPro; IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1.  
 DR PRINTS; PR00438; GRCYSKNOT.  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS00278; PDGF\_2; 1.  
 FT NON TER 1  
 FT NON TER 1  
 SQ SEQUENCE 78 AA; 9131 MW; 7BE20DDFFC17847C CRC64;

Query Match 82.6%; Score 71; DB 6; Length 78;  
 Best Local Similarity 93.3%; Pred. No. 8.8e-06;  
 Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 EESNTMOIMRIKPH 16  
 |||||  
 DB 36 EEFNTMOIMRIKPH 50

## RESULT 9

Q8MI20 PRELIMINARY; PRT; 113 AA.  
 AC Q8MI20;  
 DT 01-OCT-2002 (TREMBLrel. 22, Created)  
 DT 01-OCT-2002 (TREMBLrel. 22, Last sequence update)  
 DT 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor 182 isoform (Fragment).  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Caprinae; Ovis.  
 NC NCB1\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Placental artery endothelium;

```

RA Chung J.-Y., Tsol S.C.M., Wen Y.-X., Magness R.R., Zheng J.;
RT "Expression of VEGF receptors in ovine placental artery endothelial
RT cells";
RL Submitted (AUG-2002) to the EMBL/Genbank/DBJ databases.
DR EMBL; AF534637; AA04108.1; -.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR PROSITE; PS50278; PDGF_2; 1.
FT NON_TER 1
FT SEQUENCE 113 AA; 1335 MW; 2BF11C84E4F4858E CRC64;
SQ
Query Match 82.6%; Score 71; DB 6; Length 113;
Best Local Similarity 93.3%; Pred. No. 1.3e-05;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16
DB 3 EEFNITMOIMRIKPH 17

RESULT 10
O9MZBI PRELIMINARY; PRT; 118 AA.
AC O9MZBI;
DT 01-OCT-2000 (TREMBlrel. 15, Created)
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)
DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)
DE Vascular endothelial growth factor (Fragment).
GN VEGF.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OC NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Placental artery endothelium;
RA Zheng J., Tsol S.C., Magness R.R.;
RT "Growth factor expression in ovine fetal placental artery endothelial
RT cells";
RL Submitted (MAR-2000) to the EMBL/Genbank/DBJ databases.
DR EMBL; AF250375; AA75258.1; -.
DR HSSP; P49763; 1FZV.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
FT NON_TER 1
FT SEQUENCE 118 AA; 13931 MW; 757DC53A56378A6 CRC64;
SQ
Query Match 82.6%; Score 71; DB 6; Length 118;
Best Local Similarity 93.3%; Pred. No. 1.3e-05;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16
DB 69 EEFNITMOIMRIKPH 83

RESULT 11
O9NISI PRELIMINARY; PRT; 123 AA.
AC O9NISI;
DT 01-OCT-2000 (TREMBlrel. 15, Created)
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)
DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)
DE Vascular endothelial growth factor isoform 165 (Fragment).
GN VEGF.
OS Capreolus capreolus (Roe deer).

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OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervidae;
OC Cervidae; Odocolleinae; Capreolus.
OC NCBI_TaxID=9858;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Testis;
RX MEDLINE=20532861; PubMed=11078967;
RA Wagener A., Blotner S., Goritz F., Fickel J.;
RT "Detection of growth factors in the testis of roe deer (Capreolus
RT capreolus)".
RL Anim. Reprod. Sci. 64:65-75(2000).
DR EMBL; AF152594; AA73233.1; -.
DR HSSP; P49763; 1FZV.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
FT NON_TER 1
FT SEQUENCE 123 AA; 14354 MW; 0A756F54105A4CE1 CRC64;
SQ
Query Match 82.6%; Score 71; DB 6; Length 123;
Best Local Similarity 93.3%; Pred. No. 1.4e-05;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16
DB 36 EEFNITMOIMRIKPH 50

RESULT 12
O9GK00 PRELIMINARY; PRT; 124 AA.
AC O9GK00;
DT 01-MAR-2001 (TREMBlrel. 16, Created)
DT 01-MAR-2001 (TREMBlrel. 16, Last sequence update)
DT 01-MAR-2003 (TREMBlrel. 23, Last annotation update)
DE Vascular endothelial growth factor (Fragment).
GN VEGF.
OS Callithrix jacchus (Common marmoset).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae; Callitrix.
OC NCBI_TaxID=9483;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Oviduct;
RA Welter H., Gabler C., Einspanier R.;
RT "Growth factor expression in marmoset monkey oviducts.";
RL Submitted (MAY-2000) to the EMBL/Genbank/DBJ databases.
DR EMBL; AJ278192; CAC19923.1; -.
DR HSSP; P49763; 1FZV.
DR InterPro; IPR000072; PD_growth_factor.
DR Pfam; PF00341; PDGF_1.
DR ProDom; PD001629; PD_growth_factor; 1.
DR SMART; SM00141; PDGF_1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
FT NON_TER 1
FT SEQUENCE 124 AA; 14548 MW; AA6F8CAFECFOA0CC CRC64;
SQ
Query Match 82.6%; Score 71; DB 6; Length 124;
Best Local Similarity 93.3%; Pred. No. 1.4e-05;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16
DB 58 EEFNITMOIMRIKPH 72

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## RESULT 13

Q8SP29 PRELIMINARY; PRT; 124 AA.  
 AC Q8SP29;  
 DT 01-JUN-2002 (TREMBLrel. 21, Created)  
 DT 01-JUN-2002 (TREMBLrel. 21, Last sequence update)  
 DE 01-OCT-2002 (TREMBLrel. 22, Last annotation update)  
 DE Vascular endothelial growth factor (Fragment).  
 OS Sus scrofa (Pig).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sue.  
 NCBI\_TaxID=9823;  
 OK NCBI\_TaxID=9823;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Myocardium;  
 RA "The expression of VEGF in porcine collateral-dependent myocardial by  
 exercise training.";  
 RT Submitted (DEC-2001) to the EMBL/GenBank/DBJ databases.  
 RL EMBL; AF461807; AL85286.1; -  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam: PF00341; PDGF\_1; 1.  
 DR ProDom: PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1;  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 FT NON\_TER 124 124  
 FT SEQUENCE 124 AA; 14552 MW; 281C1A009E67C9C9 CRC64;

## Query Match

Best Local Similarity 93.3%; Score 71; DB 6; Length 124;  
 Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 EESNTMOIMRIKPH 16  
 DB 69 EEFNTMOIMRIKPH 83

## RESULT 14

Q8MJ86 PRELIMINARY; PRT; 131 AA.  
 AC Q8MJ86;  
 DT 01-OCT-2002 (TREMBLrel. 22, Created)  
 DT 01-OCT-2002 (TREMBLrel. 22, Last sequence update)  
 DE 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor-3 (Fragment).  
 OS Capreolus capreolus (Roe deer).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervidae;  
 CC Cervidae; Odocoilinae; Capreolus.  
 NCBI\_TaxID=9858;  
 OK NCBI\_TaxID=9858;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Testis;  
 RA Wagener A., Fickel J.;  
 RT "Detection of VEGF in roe deer testis."  
 RL Submitted (MAY-2002) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF514284; AA049789.1; -  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1;  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1;  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 FT NON\_TER 131 131  
 FT SEQUENCE 131 AA; 15358 MW; 99719A58EAC7FCA CRC64;

QY 2 EESNTMOIMRIKPH 16  
 DB 69 EEFNTMOIMRIKPH 83

Query Match 82.6%; Score 71; DB 6; Length 131;  
 Best Local Similarity 93.3%; Pred. No. 1.5e-05;  
 Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

DB 14 EEFNTMOIMRIKPH 28

## RESULT 15

Q9ERL6 PRELIMINARY; PRT; 142 AA.  
 AC Q9ERL6;  
 DT 01-MAR-2001 (TREMBLrel. 16, Created)  
 DT 01-MAR-2001 (TREMBLrel. 16, Last sequence update)  
 DE 01-MAR-2003 (TREMBLrel. 23, Last annotation update)  
 DE Vascular endothelial growth factor VEGF (Fragment).  
 OS Mesocricetus auratus (Golden hamster).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;  
 CC Mesocricetus.  
 NCBI\_TaxID=10036;  
 OK NCBI\_TaxID=10036;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Ramesh G., Kondalah P., Seethagiri P.B.;  
 RT "Regulation of expression of transforming growth factor-beta's by  
 steroid hormone in the hamster uterus.";  
 RL Submitted (AUG-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF297627; AA016241.1; -  
 DR HSP; P49763; IF2V.  
 DR InterPro: IPR000072; PD\_growth\_factor.  
 DR Pfam; PF00341; PDGF\_1;  
 DR ProDom; PD001629; PD\_growth\_factor; 1.  
 DR SMART; SM00141; PDGF\_1;  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 FT NON\_TER 142 142  
 FT SEQUENCE 142 AA; 16621 MW; F7DA16D924E499E CRC64;

## Query Match

Best Local Similarity 92.9%; Score 71; DB 11; Length 142;  
 Matches 13; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 3 EESNTMOIMRIKPH 16  
 DB 54 EEFNTMOIMRIKPH 67

Search completed: January 30, 2004, 11:44:42  
 Job time : 16.5744 secs

